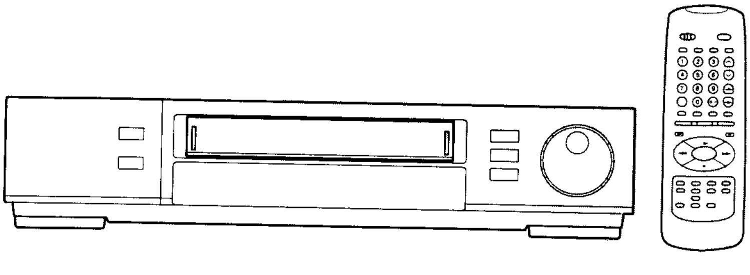
TOSHIBA

FILE NO. 110-9620

SERVICE MANUAL

VIDEO CASSETTE RECORDER

V-856G



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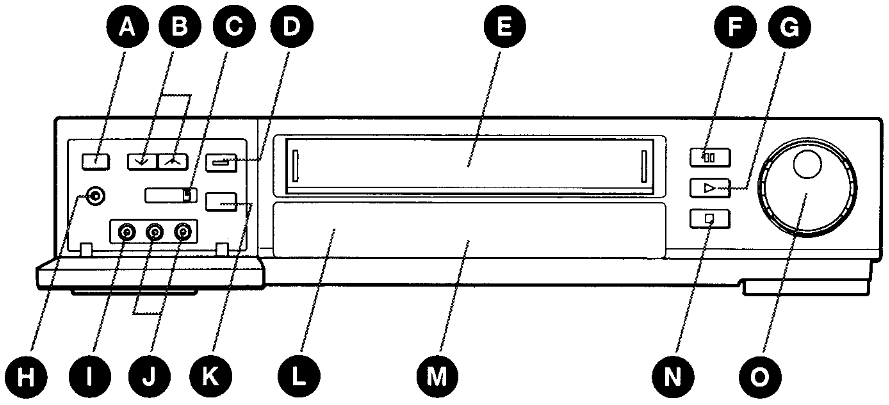
Show View system is manufactured under license from Gemstar Development Corporation.

SECTION 1
GENERAL DESCRIPTIONS
OPERATING INSTRUCTIONS

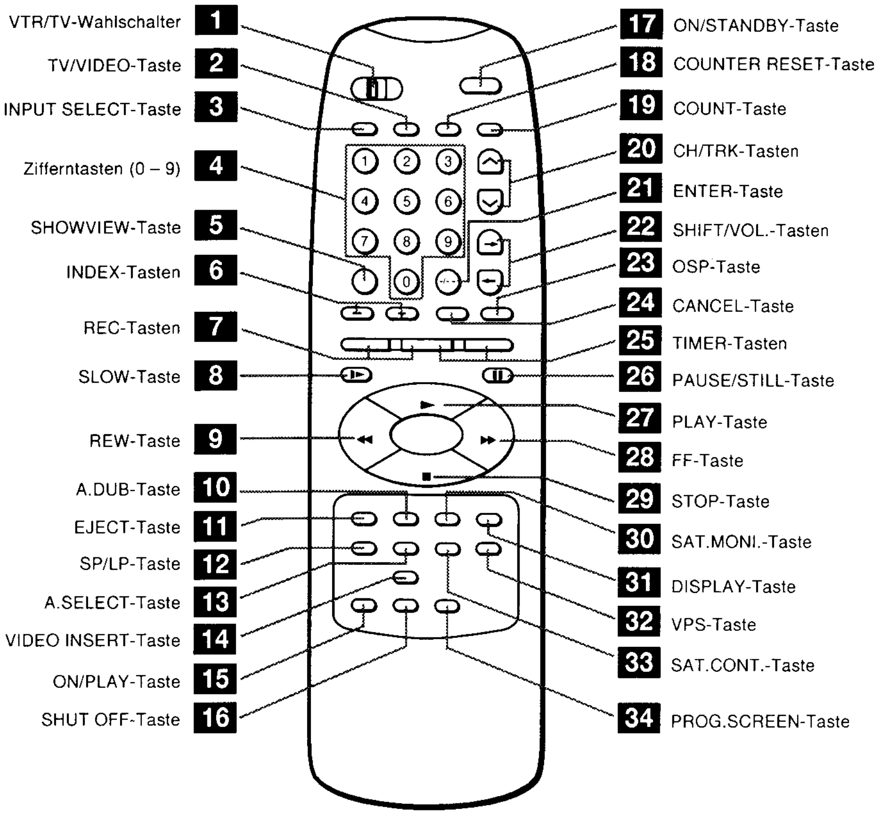
EINLEITUNG

BEZEICHNUNG DER BEDIENUNGSELEMENTE

Vorderseite


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

Fernbedienungsteil


VTR/TV-Wahlschalter 1
TV/VIDEO-Taste 2
INPUT SELECT-Taste 3
Zifferntasten (0 – 9) 4
SHOWVIEW-Taste 5
INDEX-Tasten 6
REC-Tasten 7
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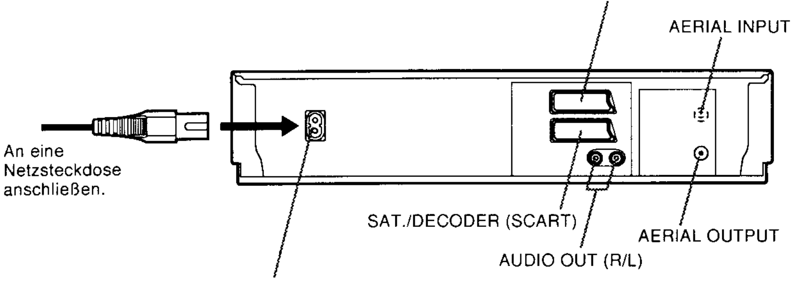
REW-Taste 9
A.DUB-Taste 10
EJECT-Taste 11
SP/LP-Taste 12
A.SELECT-Taste 13
VIDEO INSERT-Taste 14
ON/PLAY-Taste 15
SHUT OFF-Taste 16
17 ON/STANDBY-Taste
18 COUNTER RESET-Taste
19 COUNT-Taste
20 CH/TRK-Tasten
21 ENTER-Taste
22 SHIFT/VOL.-Tasten
23 OSP-Taste
24 CANCEL-Taste
25 TIMER-Tasten
26 PAUSE/STILL-Taste
27 PLAY-Taste
28 FF-Taste
29 STOP-Taste
30 SAT.MONI.-Taste
31 DISPLAY-Taste
32 VPS-Taste
33 SAT.CONT.-Taste
34 PROG.SCREEN-Taste
1
2
3
4
5
6
7
8
9
0

- Ⓐ REC-Taste
- Ⓑ CHANNEL-Tasten
- Ⓒ DNR-Schalter
- Ⓓ ON/STANDBY-Taste
- Ⓔ Cassettenfach
- Ⓕ PAUSE/STILL-Taste
- Ⓖ PLAY-Taste
- Ⓗ MIC-Buchse
- Ⓘ LINE IN 2 VIDEO-Buchse
- Ⓙ LINE IN 2 AUDIO L/R-Buchsen
- Ⓚ EJECT-Taste
- Ⓛ Fernbedienungssensor
- Ⓜ Videorecorder-Display
- Ⓝ STOP-Taste
- Ⓞ JOG-Scheibe/SHUTTLE-Ring

Eingangsbuchsen LINE IN 2 (Vorderseite)
Wenn das hier angeschlossene Gerät in Mono arbeitet (nur eine Ausgangsbuchse hat) die Seite L (MONO) anschließen, um das gleiche Tonsignal auf sowohl L als auch R auf der HiFi-Spur aufzuzeichnen.

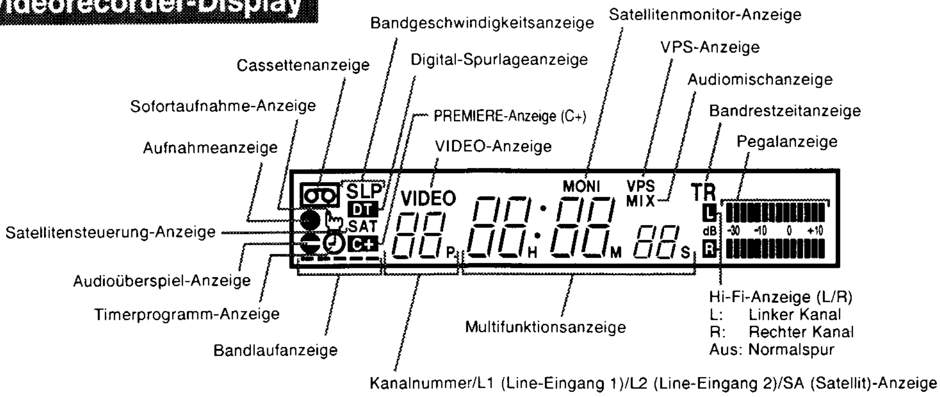
Rückseite


IN 1/OUT (SCART)
AERIAL INPUT
SAT./DECODER (SCART)
AERIAL OUTPUT
AUDIO OUT (R/L)

An eine Netzsteckdose anschließen.

Netzeingangsbuchse (MAINS SUPPLY)
Das mitgelieferte Netzkabel hier anschließen.

Videorecorder-Display


Bandgeschwindigkeitsanzeige
Satellitenmonitor-Anzeige
Cassettenanzeige
Digital-Spurlageanzeige
VPS-Anzeige
Audiomischanzeige
Sofortaufnahme-Anzeige
PREMIERE-Anzeige (C+)
Bandrestzeitanzeige
Aufnahmeanzeige
VIDEO-Anzeige
Pegalanzeige
SLP
DT
SAT
C+
VIDEO
MONI
VPS
MIX
TR
L
dB
R
-30 -10 0 +10
P
H
M
S
Satellitensteuerung-Anzeige
Audioüberspiel-Anzeige
Timerprogramm-Anzeige
Bandlaufanzeige
Multifunktionsanzeige
Hi-Fi-Anzeige (L/R)
L: Linker Kanal
R: Rechter Kanal
Aus: Normalspur
Kanalnummer/L1 (Line-Eingang 1)/L2 (Line-Eingang 2)/SA (Satellit)-Anzeige

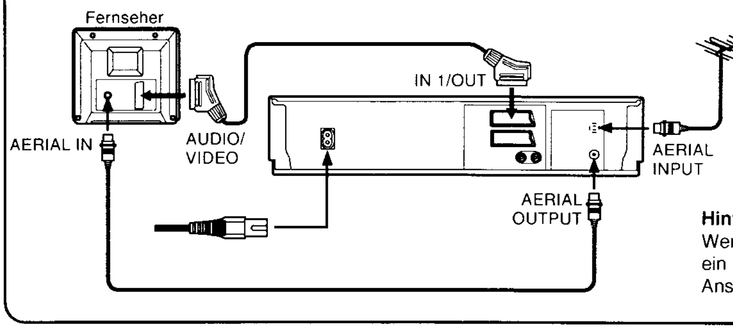
AUTOMATISCHE EINRICHTUNG

Die automatische Einrichtfunktion stellt automatisch Fernsehsender und die Uhrzeit ein. Dazu muß nur der Videorecorder an den Fernseher angeschlossen und das Netzkabel eingesteckt sein.

Automatische Einrichtung

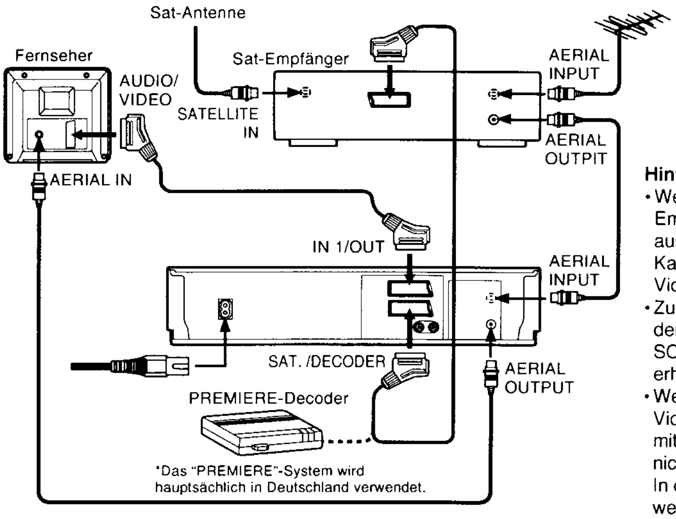
1 Den Videorecorder über Antennenkabel mit der Hauptantenne und dem Fernseher verbinden.

Um nur Fernsehsender zu empfangen


Fernseher
IN 1/OUT
AERIAL IN
AUDIO/ VIDEO
AERIAL INPUT
AERIAL OUTPUT

Hinweis
Wenn der Fernseher eine SCART-Buchse hat, ein SCART-Kabel (nicht mitgeliefert) zum Anschluß verwenden.

Um Fernseh- und Sat-Kanäle zu empfangen

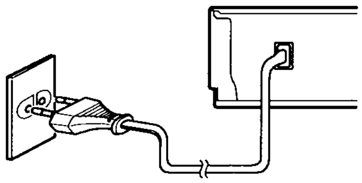

Sat-Antenne
Fernseher
Sat-Empfänger
AERIAL INPUT
AUDIO/ VIDEO
SATELLITE IN
AERIAL OUTPIT
AERIAL IN
IN 1/OUT
AERIAL INPUT
SAT. /DECODER
PREMIERE-Decoder
AERIAL OUTPUT

*Das "PREMIERE"-System wird hauptsächlich in Deutschland verwendet.

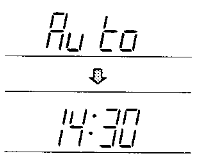
Hinweise
- Wenn sowohl der Fernseher als auch der Empfänger mit einer SCART-Buchse ausgestattet sind, verwenden Sie ein SCART-Kabel (nicht mitgeliefert) zum Anschluß an den Videorecorder.
- Zum Anschluß eines PREMIERE-Decoders an den Videorecorder oder Fernseher ein RGB SCART-Kabel (Vollanschluß-Typ, im Fachhandel erhältlich) verwenden.
- Wenn Sie den Sat-Empfänger und den Videorecorder nur mit einem Antennenkabel miteinander verbinden, werden Satellitenkanäle nicht mit automatischer Einrichtung eingestellt. In diesem Fall müssen sie manuell eingestellt werden.

Den Sat-Empfänger oder den PREMIERE-Decoder einschalten.

2 Den Videorecorder ans Netz anschließen, um die Auto-Einrichtfunktion zu starten. Einige Minuten lang blinkt die Anzeige "AUTO" im Display.



Videorecorder-Display



Wenn die Einstellung beendet ist, erscheint im Display die Zeit, also z.B. "14:30".

Die Auto-Einrichtfunktion hat jetzt alle Fernsehsender am Videorecorder und die aktuelle Uhrzeit eingestellt.
Jetzt muß nur noch der Videokanal am Fernseher eingestellt werden, wenn eine Verbindung über SCART-Kabel hergestellt ist.
Beim Speichern aller aktiven Fernsehsender stellt der Videorecorder die Uhrzeit ein.
Alle Einstellungen mit Ausnahme der des Jahres werden vorgenommen. Einstellung des Jahres siehe "Einstellung der Uhr".

BETRACHTEN VON VIDEOBILDERN

Das Verfahren zum Betrachten von Videobildern ist unterschiedlich, je nachdem ob ein SCART-Kabel verwendet wird oder nicht.

Bei Verbindung über SCART-Kabel

- **Betrachten von Videobildern vom Videorecorder**
  Eine Cassette einlegen, und die **PLAY**-Taste am Fernbedienungsteil oder an der Vorderseite des Videorecorders drücken. 27 G
- **Zum Betrachten oder Aufnehmen eines Programms vom angeschlossenen Sat-Empfänger**
  Die Taste **INPUT SELECT** drücken, so daß die Anzeige "SA" im Videorecorder-Display erscheint. 3

Bei Verbindung ohne SCART-Kabel (Einstellen des Videokanals)

Die Videorecorder-Signale werden von der Buchse AERIAL OUTPUT zum Fernseher gesandt. Der Fernseher muß einen Kanal für diese Videorecorder-Signale reserviert haben. Dieser Kanal wird als Videokanal bezeichnet.

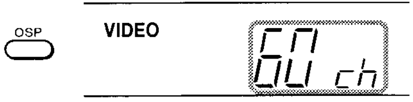
1 Schalten Sie den Fernseher ein.

2 Wählen Sie einen freien Kanal am Fernseher, der für Video verwendet werden soll, wie z.B. Kanal 9. Anschließend wird Kanal nur zum Betrachten von Videobildern verwendet.

3 Drücken Sie die **ON/STANDBY**-Taste, um den Videorecorder einzuschalten. 17 D

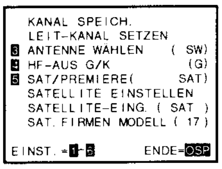
4 Halten Sie die **OSP**-Taste **länger als 5 Sekunden gedrückt**. 23

Videorecorder-Display



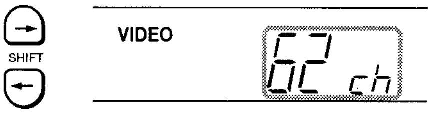
5 Stellen Sie den Fernseher (z.B. auf Kanal 9 in Schritt *2*) so ein, daß das folgende Bild klar erscheint.
(Betr. Einstellung des Fernsehers siehe Bedienungsanleitung des Fernsehers.)

Fernseherbildschirm



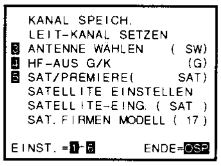
```
   KANAL SPEICH.
   LEIT-KANAL SETZEN
3  ANTENNE WÄHLEN      ( SW)
4  HF-AUS G/K           (G)
5  SAT/PREMIERE(        SAT)
   SATELLITE EINSTELLEN
   SATELLITE-EING. ( SAT )
   SAT. FIRMEN MODELL ( 17 )

EINST. =1-6         ENDE=OSP
```

6 Wenn nach der Sendereinstellung (in Schritt *5*), immer noch Störungen aufgrund von benachbarten Kanälen vorliegen, drücken Sie die **SHIFT**-Taste, um einen anderen Videokanal zwischen 53 und 67 zu wählen. 22



Stellen Sie den Fernseher um UHF-Kanal 62 (zum Beispiel) ein, und bestätigen Sie, daß das Bildschirmbild klar ist.

7 Die **Zifferntaste 4** drücken, um "G" oder "K" auf dem Bildschirm entsprechend dem Fernsehsystem in Ihrem Wohngebiet einzustellen. 4



```
   KANAL SPEICH.
   LEIT-KANAL SETZEN
3  ANTENNE WÄHLEN      ( SW)
4  HF-AUS G/K           (G)
5  SAT/PREMIERE(        SAT)
   SATELLITE EINSTELLEN
   SATELLITE-EING. ( SAT )
   SAT. FIRMEN MODELL ( 17 )

EINST. =1-6         ENDE=OSP
```

G: Deutschland, Italien, Schweiz sowie Länder des Mittleren und Nahen Ostens.
K: Russische Republik, Tschechische Republik, Slovakische Republik, Ungarn, etc.

Hinweis
Wenn diese Einstellung falsch ist, kann gute Bild-und Tonqualität nicht erzielt werden.

8 Drücken Sie die **OSP**-Taste. 23
Die Videokanal-Einstellung ist damit abgeschlossen.

Hinweis
Der hier gezeigte Fernseher ist vom PAL-System. Wenn Sie einen SECAM-oder NTSC-Fernseher verwenden, ist die Bildqualität geringer.

Hinweise zum Antennenausgang

Auf dem Bildschirm in Schritt *5* unter "Einstellen des Videokanals" kann der Antennenausgang auf "MIX" oder auf "SW" gestellt werden. (Gilt, wenn der Videorecorder nur über die Buchse AERIAL OUTPUT an den Fernseher angeschlossen ist.)
Drücken Sie die **Zifferntaste 3**, um "ANTENNE WÄHLEN" auf "SW" oder "MIX" zu stellen. 4

SW: Sie können ein Videobild auf dem Videokanal nur betrachten, wenn die Anzeige "VIDEO" im Videorecorder-Display leuchtet, indem Sie die Taste TV/VIDEO drücken.

MIX: Sie können ein Videobild auf dem Videokanal betrachten, ungeachtet ob die TV/VIDEO-Taste gedrückt ist oder nicht. Der Schalter sollte nur auf "SW" gestellt werden, wenn die Videobilder oder Fernsehbilder nicht klar erhalten werden können. 2

MARKENUNABHÄNGIGE FERNBEDIENUNG

Das mitgelieferte Fernbedienungsteil ist mit verschiedenen TV-Marken kompatibel und erlaubt in den meisten Fällen Steuerung des vorhandenen Fernsehers. Ab Werk sind Toshiba-Fernsteuercodes zur Steuerung von TOSHIBA-Fernsehern eingestellt.

Einstellen des Markencodes

Vorbereitung

Stellen Sie den VTR/TV-Wahlschalter auf "**TV**". **1**

1 Halten Sie die **OSP**-Taste gedrückt, und geben Sie die beiden Ziffern des Fernseher-Markencodes (rechts aufgeführt) über die **Zifferntasten** ein. **23** **4**

Gedrückt halten.

Beispiel

⓪→②

2 Lassen Sie die **OSP**-Taste los. **23**

3 Das Fernbedienungsteil auf den Fernseher richten, und die folgenden Tasten betätigen, um sicherzustellen, daß der Fernseher richtig gesteuert wird.

ON/STANDBY	Ein- und Ausschalten des Fernsehers.	**17**
CH	Wählen von höheren oder niedrigeren Fernsehkanälen.	**20**
VOL.	Einstellen des Lautstärkepegels.	**22**
INPUT SELECT	Wählen einer externen Signalquelle, wie eines anderen Videorecorders.	**3**
Zifferntaste/ ENTER-Taste	Wählen von Fernsehkanälen. Die Verwendungsart kann je nach Fernsehermodell unterschiedlich sein. Prüfen, wie die Tasten am vorhanden Fernseher wirken. Beispiel. Zum Wählen von Kanal 3: • 0→3 • 0→3→ENTER • ENTER→3 Zum Wählen von Kanal 16: • 1→6 • 1→6→ENTER • ENTER→ENTER→1→6	**4** **21**

Wichtig

Nicht alle Fernseher sprechen auf alle oben beschriebenen Bedienvorgänge an, und nicht jeder Fernseher kann mit diesem Fernbedienungsteil gesteuert werden. Wenn dies der Fall ist, verwenden Sie das Fernbedienungsteil des vorhandene Fernsehers.

Hinweise

- Bei manchen Marken sind mehrere Steuercodes (Markencodes) zugewiesen.
- Beim Austauschen der Batterien des Fernbedienungsteils muß der Markencode neu eingegeben werden.

Markencode-Tabelle

Marke Ihres Fernsehers	Markencode
TOSHIBA	01, 14, 15, 16, 17, 19
AKAI	08
BANG & OLUFSEN	20
BLAUPUNKT	04
BRANDT	11
BRIONVEGA	20
CGE	19
CONTINENTAL EDISON	22
FERGUSON	11, 24, 25
FINLUX	02, 15, 20
FISHER	08
FORMENTI	20
GOLDSTAR	02
GRUNDIG	04, 15, 19
HITACHI	06, 10, 11, 22
IMPERIAL	19
JVC	07
LOEWE	02
LOEWE OPTA	02, 20
METZ	20
MITSUBISHI	02, 09, 14
MIVAR	19
NOKIA	21
NORDMENDE	10, 11, 22
PANASONIC (NATIONAL)	03, 21, 26
PHILIPS	02, 18, 20
PHONOLA	02, 18, 20
PIONEER	11, 21
RADIOLA	02, 18
RADIOMARELLI	20
REX	21
SABA	10, 11, 20, 21, 22
SALORA	21
SAMSUNG	02
SANYO	08, 14
SCHNEIDER	02
SELECO	21
SHARP	05, 14
SIEMENS	04
SINGER	20
SINUDYNE	20
SONY	13, 14
TELEAVIA	11
TELEFUNKEN	11, 24
THOMSON	10, 11, 22
WEGA	20
YOKO	02

ONE-TOUCH-BEDIENUNG / VIDEOCASSETTEN-BETRIEB

ONE-TOUCH-Bedienung

Diese Funktion erlaubt es Ihnen, eine Kombination von grundlegenden Bedienvorgängen am Videorecorder und Fernseher zusammen auf einfachen Tastendruck auszuführen.

Vorbereitung
- Stellen Sie die Fernbedienung auf den Markencode des verwendeten Fernsehers ein.
- Plazieren Sie den Videorecorder und den Fernseher so nahe beieinander wie möglich, so daß beide Geräte Infrarotsignale vom Fernbedienungsteil empfangen können.
- Stellen Sie sicher, daß eine Cassette im Videorecorder eingelegt ist.

Auf Tastendruck arbeiten Videorecorder und Fernseher wie folgt.

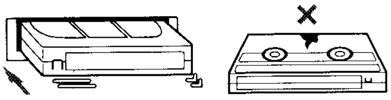
ON/PLAY-Taste ON/PLAY	Fernseher:	Schaltet ein. Wenn der Videorecorder nur über Antennenkabel an den Fernseher angeschlossen ist, stellen Sie den Videokanal ein.	15
	Videorecorder:	Schaltet ein und beginnt mit der Wiedergabe.	
SHUT OFF-Taste SHUT OFF	Fernseher:	Schaltet aus.	16
	Videorecorder:	Spult das Band zum Bandanfang zurück und schaltet dann aus.	
PROG.SCREEN-Taste PROG.SCREEN	Fernseher:	Schaltet ein. Wenn der Videorecorder nur über Antennenkabel an den Fernseher angeschlossen ist, stellen Sie den Videokanal ein.	34
	Videorecorder:	Schaltet ein und zeigt die Bildschirmtafel für SHOWVIEW Programmierung.	

Hinweise
- Diese Funktion steht nicht zur Verfügung, wenn der Videorecorder im Timeraufnahmemodus ist.
- Je nach den verwendeten Fernsehern kann es vorkommen, daß diese Funktion nur für den Videorecorder aber nicht für den Fernseher arbeitet.

Umgang mit Videocassetten

■ Einlegen einer Cassette

Schieben Sie die Cassette mit der Fensterseite nach oben und der Etikettenseite zu Ihnen hinweisend ein. Der Videorecorder schaltet automatisch ein. Die Anzeige ▭ erscheint im Videorecorder-Display. E



■ Auswerfen einer Cassette

Drücken Sie die **EJECT**-Taste. Die Cassette wird aus dem Cassettenfach ausgeschoben. K 11

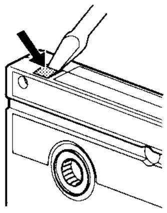
Warnung
Nicht die Hand oder Gegenstände in den Cassettenschacht stecken. Dadurch können Verletzungen oder Schäden am Gerät hervorgerufen werden. Seien Sie besonders vorsichtig, wenn kleine Kinder in der Nähe sind, um Unfälle zu verhindern.

Vorsichtsmaßregeln zum Umgang mit Videocassetten

Videocassetten haben einen Löschschutzzapfen, um versehentliches Löschen zu verhindern. Wenn dieser Zapfen herausgebrochen ist, ist Aufnahme unmöglich.

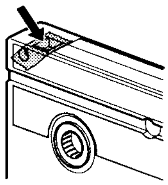
■ Zur Vermeidung versehentlichen Löschens

Diesen Zapfen mit einem Schraubenzieher herausbrechen.



■ Zum erneuten Bespielen

Die Aussparung mit Klebestreifen abdecken.



- Schützen Sie Ihre Cassetten vor direktem Sonnenlicht, und legen Sie die Cassetten nicht in der Nähe von Heizkörpern ab.
  Vermeiden Sie Plätze mit hoher Luftfeuchtigkeit, Vibrationen und Stößen, starken Magnetfeldern (wie sie in der Nähe von Elektromotoren, Trafos oder Magneten auftreten) und Staub.

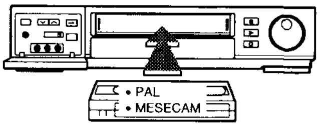
EINSTELLEN DES VIDEOSYSTEMS

Die videosystems muß richtig eingestellt werden, um Bänder richtig zu bespielen oder abzuspielen.

Videosystem-Einstellung

Mit diesem Videorecoder kompatible Videosysteme:

PAL-Bänder:	Im Handel erhältliche Bänder, die im PAL-Videosystem bespielt sind, oder Bänder, auf denen PAL-Fernsehprogramme aufgezeichnet wurden.
MESECAM-Bänder:	Bänder, auf denen SECAM-Fernsehprogramme mit einem MESECAM-Videorecorder aufgezeichnet wurden.



Vorbereitung

- Schalten Sie den Videorecorder ein.
- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR".

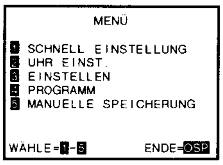
1

Zur Wiedergabe

Dieser Videorecorder kann Bänder abspielen, die in den Fernsehnormen PAL, MESECAM oder NTSC bespielt sind. Wählen Sie das Videosystem entsprechend dem abzuspielenden Band. Zum Abspielen eines mit NTSC bespielten Bands siehe Abschnitt "WIEDERGABE VON NTSC-BÄNDERN".

1 Drücken Sie die **OSP**-Taste. **23**

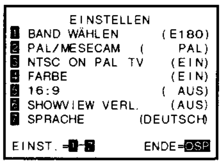
OSP



```
                 MENÜ

1 SCHNELL EINSTELLUNG
2 UHR EINST.
3 EINSTELLEN
4 PROGRAMM
5 MANUELLE SPEICHERUNG


WÄHLE=1-5                ENDE=OSP
```

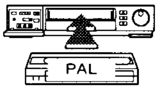
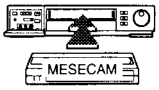
2 Drücken Sie die **Zifferntaste 3**. **4**

③



```
            EINSTELLEN
1 BAND WÄHLEN         (E180)
2 PAL/MESECAM   (      PAL)
3 NTSC ON PAL TV      (EIN)
4 FARBE               (EIN)
5 16:9               ( AUS)
6 SHOWVIEW VERL.      (AUS)
7 SPRACHE         (DEUTSCH)

EINST. =1-7            ENDE=OSP
```

3 Drücken Sie die **Zifferntaste 2**, um die unten gezeigte Einstellung vorzunehmen. **4**

Videosystem des zur Wiedergabe verwendeten Bandes	 PAL	 MESECAM
Die Zifferntaste 2 wiederholt drücken, um einzustellen:	"PAL"	"MESECAM"
Ausgabe-Farbe OUTPUT ⊙ AERIAL IN 1/OUT	PAL	SECAM

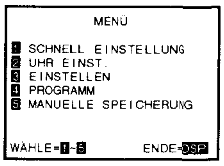
4 Drücken Sie die **OSP**-Taste zweimal zum Beenden. **23**

Zur Aufnahme

Wählen Sie das Videosystem entsprechend der gewünschten Aufnahmequelle.

1 Drücken Sie die **OSP**-Taste. **23**

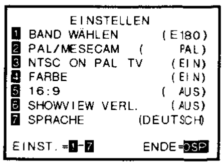
OSP



```
                 MENÜ

1 SCHNELL EINSTELLUNG
2 UHR EINST.
3 EINSTELLEN
4 PROGRAMM
5 MANUELLE SPEICHERUNG


WÄHLE=1-5                ENDE=OSP
```

2 Drücken Sie die **Zifferntaste 3**. **4**

③



```
            EINSTELLEN
1 BAND WÄHLEN         (E180)
2 PAL/MESECAM   (      PAL)
3 NTSC ON PAL TV      (EIN)
4 FARBE               (EIN)
5 16:9               ( AUS)
6 SHOWVIEW VERL.      (AUS)
7 SPRACHE         (DEUTSCH)

EINST. =1-7            ENDE=OSP
```

3 Drücken Sie die **Zifferntaste 2**, um die unten gezeigte Einstellung vorzunehmen. **4**

Fernsehsystem INPUT AERIAL	PAL B/G (Deutschland, Italien, Schweiz etc.)	SECAM B/G (Länder des mittleren und nahen Ostens) SECAM D/K (Russische Republik, Tschechische Republik, Slovakische Republik, Ungarn, etc)
Videosystem über LINE IN-Buchsen IN ◎ VIDEO IN 1/OUT	PAL	SECAM
Die Zifferntaste 2 wiederholt drücken, um einzustellen:	"PAL"	"MESECAM"
Videosystem auf Band aufgezeichnet	PAL	MESECAM

4 Drücken Sie die **OSP**-Taste zweimal zum Beenden. **23**

WIEDERGABE

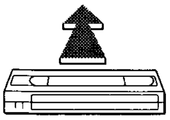
In diesem Kapitel werden grundlegende Wiedergabeverfahren beschrieben.

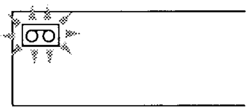
Grundlegende Wiedergabe

Vorbereitung

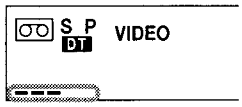
- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR". **1**
- Stellen Sie das Videosystem richtig ein.

1 Schieben Sie eine bespielte Videocassette ein. Ⓔ
Der Videorecorder schaltet sich ein. Bei Cassetten mit herausgebrochenem Löschschutzzapfen startet die Wiedergabe automatisch.



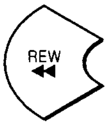


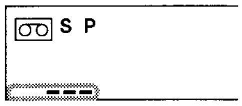
2 Drücken Sie die **PLAY**-Taste zum Starten der Wiedergabe. **27** Ⓖ



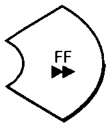
3 Drücken Sie nach beendeter Wiedergabe die **STOP**-Taste. **29** Ⓝ

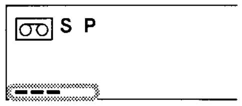
- Zum Rückspulen, drücken Sie die **REW**-Taste im Stoppmodus. **9**





- Zum Vorspulen, drücken Sie die **FF**-Taste im Stoppmodus. **28**





Hinweis

Fernseher, die über SCART-Buchsen angeschlossen sind, wählen normalerweise automatisch die Videoeingang-Betriebsart, wenn die PLAY-Taste gedrückt wird.

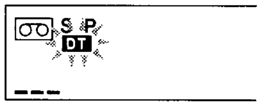
Wiedergabe und Aufnahme in LP-Bandgeschwindigkeit

Beim Abspielen einer Videocassette, die mit einem anderen Videorecorder aufgenommen wurde, kommt es mitunter vor, daß die Farbe aus dem Bild verschwindet oder das Bild unstabil ist und Rauschstörungen auftreten. Es empfiehlt sich daher, Bänder, die mit diesem Videorecorder bespielt wurden, auch mit diesem Gerät abzuspielen.

Einstellen der Spurlage

- **Automatische Digital-Spurlageregelung**

Bei Beginn der Wiedergabe wird die Digital-Spurlageregelfunktion automatisch für optimale Bild- und Tonqualität eingeschaltet.
Die "DT"-Anzeige blinkt während der Einstellung im Display.

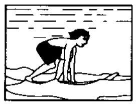


Hinweise

- Während der automatischen Spurlageregelung treten mitunter Bild- und Tonverzerrungen auf.
- Die automatische Digital-Spurlageregelung ist nur im Wiedergabemodus aktiv.

- **Manuelle Einstellung der Spurlage**

Stellen Sie die Spurlage manuell ein, falls sich mit der automatischen Digital-Spurlageregelung keine optimalen Ergebnisse erzielen lassen. **20**
Halten Sie dazu die **CH/TRK**-Taste gedrückt, bis optimale Bild- und Tonqualität erzielt ist.



Hinweise

- Drücken Sie die Tasten CH/TRK gleichzeitig, falls Sie die Spurlage auf Mittenposition zurückstellen möchten. **20**
- Zum Zurückstellen auf digitale Spurlageregelung beide CHANNEL-Tasten am Videorecorder gleichzeitig etwa 2 Sekunden lang gedrückt halten. Ⓑ
- Je nach dem verwendeten Band lassen sich Rauschstörungen im Bild mitunter nicht vollständig beseitigen, besonders wenn das Band mit einem anderen Videorecorder aufgenommen wurde.

Digitale Rauschunterdrückung (DNR – Digital Noise Reduction)

Die Rauschunterdrückung in diesem Videorecorder sorgt für wirksame Verringerung des Bandrauschens bei der Wiedergabe von Bändern mit hohem Rauschpegel.
Stellen Sie den **DNR**-Schalter wie folgt ein: Ⓒ

ON: Normalerweise auf "ON" gestellt. Wiedergabe mit weniger Bandrauschen ist möglich.
OFF: Die Funktion ist nicht aktiv.

Hinweise

- Die DNR-Funktion steht nur bei der Wiedergabe zur Verfügung.
- Je nach dem aufgezeichneten Bild, z.B. wenn es zu bewegt oder zu verrauscht ist, kann eine Verringerung im Rauschpegal nicht bemerkbar sein.
- Die Rauschunterdrückung arbeitet u.U. nicht mit Bildmaterial, das mit speziellen Geräten wie Videospiel-Maschinen oder Computern aufgezeichnet wurden.

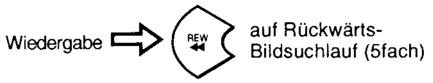
WIEDERGABE MIT VARIABLER GESCHWINDIGKEIT

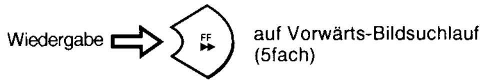
Wiedergabe ist mit verschiedenen Geschwindigkeiten möglich.

Bildsuchlauf

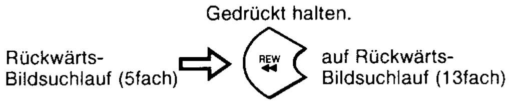
Diese Funktion ermöglicht das schnelle Auffinden einer bestimmten Szene oder eines gewünschten Bandabschnitts während der Betrachtung des Wiedergabebilds im Vor- oder Rückspulmodus.

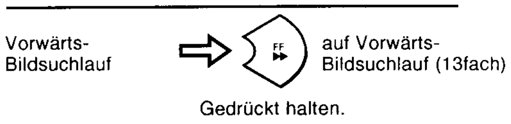
1 Drücken Sie während der Wiedergabe die **REW**- oder **FF**-Taste. **9** **28**
Das Band wird jetzt mit fünffacher Normalgeschwindigkeit vor- bzw. zurückgespult.


Wiedergabe
REW
auf Rückwärts-Bildsuchlauf (5fach)


Wiedergabe
FF
auf Vorwärts-Bildsuchlauf (5fach)

2 Durch anhaltendes Drücken der **REW**- oder **FF**-Taste startet der Videorecorder den beschleunigten Suchlauf. **9** **28**


Gedrückt halten.
Rückwärts-Bildsuchlauf (5fach)
REW
auf Rückwärts-Bildsuchlauf (13fach)


Vorwärts-Bildsuchlauf
FF
auf Vorwärts-Bildsuchlauf (13fach)
Gedrückt halten.

Bei Freigabe der Taste wird die Suchlaufgeschwindigkeit wieder auf die fünffache Normalgeschwindigkeit reduziert.

3 Drücken Sie zur Fortsetzung der normalen Wiedergabe die **PLAY**-Taste. **27** **G**

Hinweise

- Im Bild treten hierbei leichte Störungen auf. Es handelt sich dabei jedoch nicht um eine Fehlfunktion des Gerätes.
- Wenn Sie ein Band abspielen, das im LP-Bandgeschwindigkeit oder auf einem anderen Videorecorder aufgezeichnet wurde, kann das Bild verrauscht oder einfarbig sein.
- Wenn Sie die REW- oder FF-Taste während des Vor- oder Rückspulens drücken, schaltet der Videorecorder auf Bildsuchlauf.
  Wenn Sie die REW- oder FF-Taste während des Bildsuchlaufs drücken, schaltet der Videorecorder auf Rückspul- bzw. Vorspulbetrieb.

Standbild

Diese Funktion ermöglicht das “Einfrieren” des Bildes für eine genauere Betrachtung.

1 Drücken Sie während der Wiedergabe die **PAUSE/STILL**-Taste. **26** **F**
Das Bild bleibt stehen.

Wiedergabe
PAUSE/STILL
auf Standbild

2 Drücken Sie zur Fortsetzung der normalen Wiedergabe die **PAUSE/STILL**-Taste. **26** **F**

Standbild
PAUSE/STILL
auf Normalwiedergabe

Die Standbildfunktion wird nach etwa 5 Minuten automatisch ausgeschaltet. Anschließend setzt der Videorecorder die normale Bandwiedergabe fort.

Hinweise

- Wenn das Band auf einem anderen Videorecorder aufgenommen wurde, lassen sich Störungen im Standbild mitunter nicht vollständig beseitigen.
- Wenn Sie ein Band abspielen, das im LP-Bandgeschwindigkeit oder auf einem anderen Videorecorder aufgezeichnet wurde, kann das Bild verrauscht oder einfarbig sein.
- Falls Rauschstörungen im Standbild auftreten, stellen Sie die Spurlage im Zeitlupenbildmodus manuell ein.

Regelung der Bildstabilität bei Standbild

Halten Sie die **CH/TRK**-Taste gedrückt, wenn das Standbild verzerrt ist oder flackert, bis sich das Bild stabilisiert. **20**

Hinweis
Die Bildverzerrung wird u.U. nicht vollständig beseitigt.

Bildfortschaltung

Mit Hilfe dieser Funktion kann eine Filmszene Bild für Bild weitergeschaltet werden.

1 Drücken Sie während der Wiedergabe die **PAUSE/STILL**-Taste. **26** **F**

PAUSE/STILL

2 Drücken Sie die **PLAY**-Taste. **27** **G**
Bei jedem Drücken der Taste wird um ein Bild weitergeschaltet.
Während die Taste gedrückt gehalten wird, läuft das Band mit 1/25 der normalen Wiedergabegeschwindigkeit.

3 Drücken Sie zur Fortsetzung der normalen Wiedergabe die **PAUSE/STILL**-Taste. **26** **F**

Zeitlupenbild

Der Videorecorder bietet Wiedergabe mit 1/6 und 1/12 der normalen Bandgeschwindigkeit.

1. Drücken Sie während der Wiedergabe die **SLOW**-Taste. **8**
   Das Band wird jetzt mit 1/6 der normalen Wiedergabegeschwindigkeit abgespielt.

   SLOW

2. Durch nochmaliges Drücken der **SLOW**-Taste wechselt die Zeitlupenfunktion auf 1/12 der normalen Wiedergabegeschwindigkeit. **8**
   Bei jedem Drücken der **SLOW**-Taste wechselt die Zeitlupenfunktion zwischen 1/6 und 1/12 der normalen Wiedergabegeschwindigkeit.

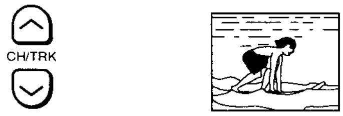
3. Drücken Sie zur Fortsetzung der normalen Wiedergabe die **PLAY**-Taste. **27** **G**

   Die Zeitlupenbildfunktion wird nach etwa 5 Minuten automatisch ausgeschaltet. Anschließend schaltet der Videorecorder wiederauf normale Wiedergabe zurück.

Hinweis
Das Zeitlupenbild kann sich nach unten und oben verschieben. Dies weist nicht auf einen Defekt am Gerät hin.

Manuelle Spurlageregelung im Zeitlupenmodus

Halten Sie die **CH/TRK**-Taste gedrückt, wenn Rauschstörungen im Zeitlupenbild auftreten, bis ein optimales Bild erzielt ist. **20**



Hinweis
Mitunter lassen sich Störungen im Zeitlupenbild durch eine Spurlageregelung nicht vollständig beseitigen.

Verwendung der JOG-Scheibe und des SHUTTLE-Rings

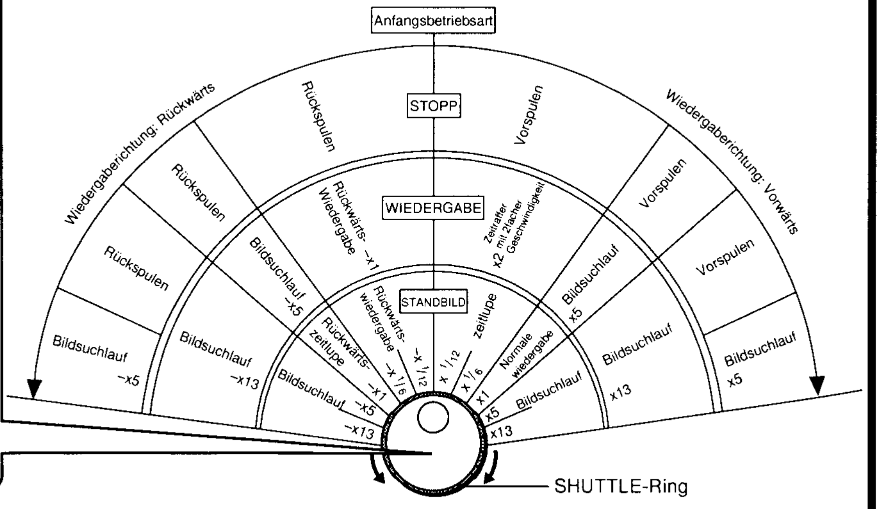
Die untenstehende Zeichnung erläutert die Bedienung der **JOG**-Scheibe und des **SHUTTLE**-Rings am Videorecorder. **O**

	Zeitlupe		Bildsuchlauf	Schneller Bildsuchlauf
PAL/MESECAM (SP)	1/12	1/6	x5	x13
PAL/MESECAM (LP)	1/12	1/6	x5	x13
NTSC (SP)	1/15	1/7	x5	x9
NTSC (SLP)	1/15	1/7	x5	x27

Verwendung der JOG-Scheibe

1) Bei der Wiedergabe die **PAUSE/STILL**-Taste am Videorecorder drücken. **F**
2) Die JOG-Scheibe im Uhrzeigersinn oder gegen den Uhrzeigersinn drehen. Das Bild wird entsprechend der Geschwindigkeit der Betätigung des Reglers weitergeschaltet. Wenn die Scheibe gestoppt wird, wird ein Standbild erhalten. **O**

- Zum Aufheben des JOG-Scheiben-Modus die **PAUSE/STILL**-Taste erneut drücken.


Anfangsbetriebsart
STOPP
WIEDERGABE
STANDBILD
Wiedergaberichtung: Rückwärts
Wiedergaberichtung: Vorwärts
Rückspulen
Vorspulen
Rückspulen
Rückspulen
Vorspulen
Vorspulen
Bildsuchlauf −x5
Bildsuchlauf −x13
Bildsuchlauf −x5
Rückwärts-Wiedergabe −x1
Zeitraffer mit 2facher Geschwindigkeit x2
Bildsuchlauf x5
Bildsuchlauf x13
Bildsuchlauf x5
Rückwärts-zeitlupe
Rückwärts-wiedergabe −x1
−x 1/6
−x 1/12
x 1/12
zeitlupe
x 1/6
Normale wiedergabe x1
Bildsuchlauf −x5
−x13
Bildsuchlauf x5
x13
SHUTTLE-Ring

Hinweise
- Die Rückwärts-Zeitlupen-Wiedergabe wird automatisch nach ca. 1 Minute aufgehoben, und das Gerät schaltet auf Vorwärts-Wiedergabe.
- Die Standbild- oder Rückwärtswiedergabe wird automatisch nach ca. 5 Minuten aufgehoben, und das Gerät schaltet auf Vorwärts-Wiedergabe.
- Der Vor- oder Rückspulvorgang, der aus dem Stoppmodus gestartet wird, wird auch dann fortgesetzt, wenn der SHUTTLE-Ring losgelassen wird. Zum Stoppen drücken Sie die STOP-Taste. **N** **29**

3 3

WIEDERGABE

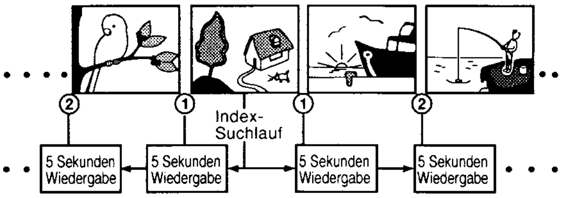
INDEX-SUCHBETRIEB

Sie können gewünschte Programme leicht mit den auf dem Band aufgezeichneten Indexsignalen auffinden.

Über diese Funktion

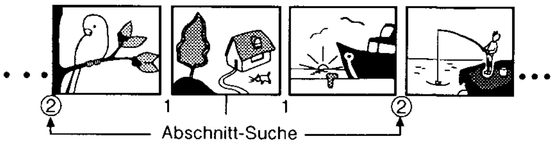
Index-Suche

Spielt jedes Programm mit einem Indexsignal etwa 5 Sekunden lang an.


②
①
Index-Suchlauf
①
②
5 Sekunden Wiedergabe
5 Sekunden Wiedergabe
5 Sekunden Wiedergabe
5 Sekunden Wiedergabe

Abschnitt-Suche

Spielt Programme mit aufgezeichneten Indexsignalen ab.


②
1
1
②
Abschnitt-Suche

Zur Verwendung dieser Funktion müssen Indexsignale auf dem Band aufgezeichnet sein. Zur Aufzeichnung von Indexsignalen verfahren Sie wie folgt.

Aufzeichnen von Indexsignalen

■ **Automatische Aufzeichnung von Indexsignalen**

Ein Indexsignal wird automatisch beim Aufnahmestart aufgezeichnet.

Hinweise

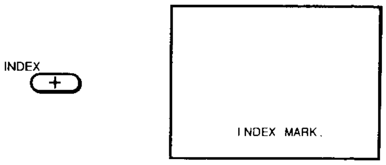
- Ein Indexsignal wird nicht aufgezeichnet, wenn der Videorecorder auf Aufnahme-Pause steht und die Aufnahme fortgesetzt wird.
- Ein Indexsignal wird auch registriert, wenn eine Aufnahme mit Timerprogramm beginnt.

■ **Manuelle Aufzeichnung von Indexsignalen**

Indexsignale können manuell an gewünschten Stellen bei der Aufnahme aufgezeichnet werden.

Drücken Sie die **INDEX**-Taste (+) an der gewünschten Stelle.

6


INDEX
+
INDEX MARK.

Hinweis

Bei der Eingabe von zwei oder mehr Indexsignalen sind Mindest-Abstände auf dem Band erforderlich: Mindestens 1 Minute im SP-Modus und über 2 Minuten im LP-Modus.

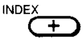
Index-Suche

Diese Funktion spielt das Band etwa 5 Sekunden lang bei jedem Indexsignal an.

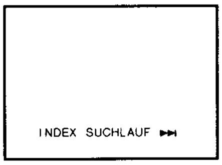
1 Eine Cassette mit aufgezeichneten Indexsignalen einlegen. **E**

2 Die **INDEX**-Taste (–) oder (+) zweimal im Stoppbetrieb oder Wiedergabebetrieb drücken. **6**

: Zum Suchen in Rückwärtsrichtung



: Zum Suchen in Vorwärtsrichtung


INDEX SUCHLAUF ►►I

Der Videorecorder spult das Band schnell vor oder zurück. Jedesmal wenn ein Indexsignal aufgefunden wird, schaltet der Videorecorder ca. 5 Sekunden lang auf Wiedergabe und danach zurück auf Vor- bzw. Rückspulbetrieb. Dieser Vorgang wird bei jedem Indexsignal wiederholt.

3 Drücken Sie die **PLAY**-Taste, wenn das gewünschte Programm gefunden ist. **27** **G**
Die normale Wiedergabe beginnt.

Hinweise

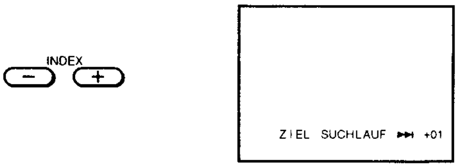
- Ganz am Bandanfang kann die Indexsuchfunktion nicht richtig arbeiten.
- Wenn Sie Indexsignale auf einem Band aufgezeichnet haben, das mit einem anderen Videorecorder bespielt wurde, kann es sein, daß die Aufnahme an der Indexstelle verschwommen ist und der Indexsuchlauf nicht richtig arbeitet.

Abschnitt-Suche

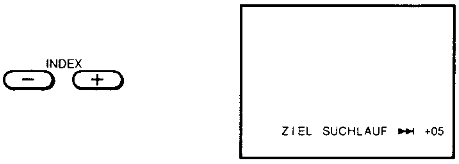
Diese Funktion spult das Band zu der Stelle vor oder zurück, wo ein Indexsignal vorhanden ist und beginnt die Wiedergabe an dieser Stelle.

1 Eine Cassette mit aufgezeichneten Indexsignalen einlegen. **E**

2 Die **INDEX**-Taste (–) oder (+) zweimal im Stoppbetrieb oder Wiedergabebetrieb drücken. **6**


INDEX
ZIEL SUCHLAUF ►►I +01

3 Die **INDEX**-Taste (–) oder (+) je nach der Richtung in der das gewünschte Programm liegt drücken. **6**
Bei jedem Tastendruck (–) oder (+) wird die Programmnummer höher bzw. niedriger gestellt.

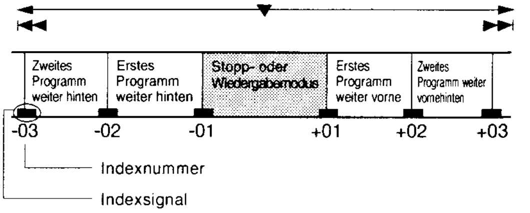

INDEX
ZIEL SUCHLAUF ►►I +05

Der Videorecorder beginnt die Suche nach der mit der Taste (–) oder (+) eingegebenen Stelle. Jedesmal wenn ein Indexsignal aufgefunden wird, schaltet er automatisch auf Wiedergabe.

Hinweise

- Eine Indexnummer kann bis zu ±20 eingegeben werden.
- Der Abschnittsuchlauf wird abgebrochen, wenn die PLAY- oder STOP-Taste gedrückt wird.

Aufsuchen der Indexnummer


Rückwärtsrichtung
Laufendes Programm
Vorwärtsrichtung
Zweites Programm weiter hinten
Erstes Programm weiter hinten
Stopp- oder Wiedergabemodus
Erstes Programm weiter vorne
Zweites Programm weiter vornehinten
-03
-02
-01
+01
+02
+03
Indexnummer
Indexsignal

[Beispiel]

- Zum Aufsuchen des Anfangs des ersten zurückliegenden Programmes die **INDEX**-Taste (–) dreimal drücken, um die Indexnummer -02 einzustellen.
- Zum Aufsuchen des Anfangs des nächsten vorausliegenden Programmes die **INDEX**-Taste (+) dreimal drücken, um die Indexnummer +01 einzustellen.

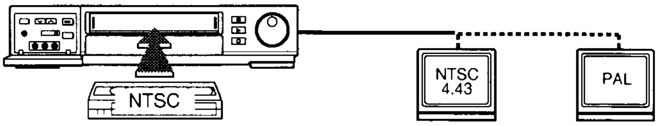
WIEDERGABE VON NTSC-BÄNDERN

Dieser Videorecorder kann mit NTSC bespielte Cassetten abspielen. Wiedergabe ist mit sowohl PAL-Fernsehern als auch NTSC-4.43-Fernsehern möglich.

Einstellung zur NTSC-Wiedergabe

Bei Wiedergabe von NTSC bespielten Bändern auf diesem Videorecorder nehmen Sie eine Einstellung im EINSTELLEN Bildschirm entsprechend dem vorhandenen Fernseher vor.

NTSC-Bänder: Bänder, auf denen Programme in der NTSC-M-Norm aufgezeichnet sind. Diese Fernsehnorm wird in den USA und in Japan verwendet, und NTSC bespielte Bänder sind im Handel erhältlich.



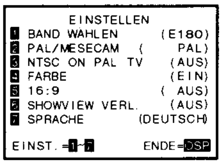
Multisystem-Fernseher (kompatibel mit NTSC 4.43)

1 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**

2 Drücken Sie die **Zifferntaste 3**, um "EINSTELLEN" zu wählen. **4**

3 Stellen Sie "NTSC ON PAL TV" auf "**AUS**", indem Sie die **Zifferntaste 3** drücken. **4**

③



```
            EINSTELLEN
1 BAND WAHLEN          (E180)
2 PAL/MESECAM   (       PAL)
3 NTSC ON PAL TV       (AUS)
4 FARBE                (EIN)
5 16:9                 ( AUS)
6 SHOWVIEW VERL.       (AUS)
7 SPRACHE          (DEUTSCH)

EINST.=1~7          ENDE=OSP
```

4 Drücken Sie die **OSP**-Taste zweimal, um zum normalen Fernseherbild zurückzuschalten. **23**

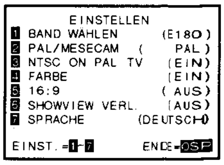
PAL-Fernseher

1 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**

2 Drücken Sie die **Zifferntaste 3**, um "EINSTELLEN" zu wählen. **4**

3 Stellen Sie "NTSC ON PAL TV" auf "**EIN**", indem Sie die **Zifferntaste 3** drücken. **4**

③



```
            EINSTELLEN
1 BAND WÄHLEN          (E180)
2 PAL/MESECAM   (       PAL)
3 NTSC ON PAL TV       (EIN)
4 FARBE                (EIN)
5 16:9                 ( AUS)
6 SHOWVIEW VERL.       (AUS)
7 SPRACHE          (DEUTSCH)

EINST.=1~7          ENDE=OSP
```

4 Drücken Sie die **OSP**-Taste zweimal, um zum normalen Fernseherbild zurückzuschalten. **23**

Hinweis

Mit diesem Videorecorder können im SLP-Modus bespielte NTSC-Bänder abgespielt werden. Dazu müssen aber einige Punkte beachtet werden.

- Die Bild- und Tonqualität kann nachlassen.
- Wiedergabe mit variabler Geschwindigkeit (Bildsuchlauf, Standbild, Zeitlupe etc.) arbeitet nicht richtig.
- Digitale automatische Spurlageregelung arbeitet nicht richtig.

Hinweise zur Verwendung eines PAL-Fernsehers zur NTSC-Wiedergabe

- Verwenden Sie einen Fernseher, der mit der PAL-Norm Version 60 kompatibel ist (525 Zeilen).
  Wenn ein Fernseher verwendet wird, der nicht mit PAL 60 kompatibel ist (wie ein Fernseher, der nur auf PAL 50 mit 625 Zeilen ausgelegt ist), können NTSC-Wiedergabebilder nach oben oder unten abwandern. Dabei handelt es sich nicht um eine Fehlfunktion des Videorecorders oder Fernsehers. Wenn Ihr Fernseher einen Bildfangregler hat, kann es sein, daß Sie mit diesem Regler das vertikale Wandern des Bildes stoppen können.
  Über den Unterschied zwischen den Videosignalen von PAL 50 und PAL 60:
  PAL 50 : Das normale PAL-Signal mit 50 Halbbildern und 625 Zeilen.
  PAL 60 : Ein spezielles PAL-Signal mit 60 Halbbildern und 525 Zeilen.
  Manche Fernseher arbeiten nur mit Signalen des Typs PAL 50 richtig, während andere sowohl Signale des Typs PAL 50 als auch PAL-60 verarbeiten können.
  Falls Ihr Fernseher zwischen PAL 50 (625 Zeilen) und PAL 60 (525 Zeilen) umschaltbar ist, können Sie ein NTSC-Band im PAL-System mit Ihrem eigenen Fernseher betrachten.
- Je nach dem verwendeten Fernseher kann das Bild vertikal schrumpfen, und schwarze Balken können am oberen und unteren Bildrand erscheinen.
  Dabei handelt es sich nicht um eine Fehlfunktion.
- Wiedergabe mit variabler Geschwindigkeit (Bildsuchlauf, Zeitlupe etc.) kann ein verzerrtes Bild und einen hohen Grad an Rauschen im Bild hervorrufen.
- Wenn das Band in der SP-Bandgeschwindigkeit bespielt ist und im Bildsuchlaufmodus abgesucht wird, kann es sein, daß die Farbe verschwindet.

Hinweis

Zum Betrachten von mit NTSC bespielten Bändern empfehlen wir einen Fernseher des Systems NTSC 4.43.

3 5

WIEDERGABE

EINSTELLEN DES TONAUSGANGS

Einstellen des Tonausgangs

Drücken Sie beim Empfang eines Fernsehprogramms oder bei der Wiedergabe eines Hi-Fi-Cassettenbands die **A.SELECT**-Taste, zur Wahl des gewünschten Tonausgangs. **13**

Wenn die **A.SELECT**-Taste gedrückt wird, wird der Tonausgang und die Anzeige wie folgt umgestellt:

Videorecorder-Display / Tonausgang	Stereoprogramme	Zweisprachenprogramme	Normale Fernsehprogramme
L R	Stereo-Tonausgang (linker und rechter Kanal)	Ton von Kanal I (MAIN) aus dem linken Lautsprecher, und Kanal II (SUB) aus dem rechten.	Mono-Tonausgang
⇩ L	Tonausgang des linken Kanals aus beiden Lautsprechern (links und rechts)	Ton von Kanal I (MAIN) aus beiden Lautsprechern (links und rechts)	Mono-Tonausgang
⇩ R	Tonausgang des rechten Kanals aus beiden Lautsprechern (links und rechts)	Ton von Kanal II (SUB) aus beiden Lautsprechern (links und rechts)	Mono-Tonausgang
⇩ Sowohl L als auch R erlöschen.	Mono-Tonausgang	Ton von Kanal I (MAIN) aus beiden Lautsprechern (links und rechts)	Mono-Tonausgang
⇩ MIX L R	Ton von linken und rechten Kanal gemischt und normale Audiospur		

Ton von aufgenommenen Fernsehprogrammen

Der Videorecorder nimmt Fernsehprogramme mit Hi-Fi-Tonqualität auf.

Stereo- und Zweisprachen-Fernsehprogramme werden deshalb mit ihrem Originalton aufgenommen.

Hinweise

- Beim Hören einer Stereowiedergabe oder Wiedergabe eines in Stereo mit Hi-Fi bespielten Bandes muß der Videorecorder an die Stereoanlage oder den Stereo-Fernseher über ein SCART-Kabel angeschlossen werden.
  Der über die Antennenausgangsbuchse (AERIAL OUTPUT) ausgehende Ton ist mono.
- Wenn ein Band abgespielt wird, das nicht mit Hi-Fi bespielt wurde, erlöschen die Anzeigen L und R automatisch, und der Ton wird in Mono ausgegeben.

Hi-Fi- und normales Audiosystem

Die Hi-Fi-Stereospur (2 Kanäle) kann zur Erzielung einer hervorragenden Hi-Fi-Klangwiedergabe verwendet werden. Der auf normalen Tonspuren aufgenommene Ton ist mit herkömmlichen Videorecordern kompatibel.

Drücken Sie zum Abspielen eines HiFi-Cassettenbands die **A.SELECT**-Taste zur Wahl des gewünschten Tonausgangs. **13**

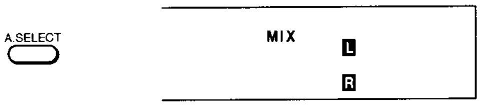
Die Anzeigen L und R im Videorecorder-Display zeigen an, welche Art von Tonausgang jeweils eingestellt ist. Achten Sie beim Einstellen des gewünschten Tonausgangs deshalb lediglich darauf, welche der beiden Anzeigen gerade leuchtet und welche nicht.

Audio-Mischfunktion

Der Videorecorder kann Töne wiedergeben, wobei einer auf der Hi-Fi-Stereospur und einer auf der normalen Audiospur gemischt wird.

Diese Funktion erlaubt es z.B. ein bespieltes Hi-Fi-Band mit Ihrer Stimme zu unterlegen.

Drücken Sie die **A.SELECT**-Taste mehrmals, so daß "MIX" im Videorecorder-Display erscheint. **13**



3 6

WIEDERGABE

ZÄHLWERKFUNKTION

Die folgenden Funktionen sind praktosche Hilfen beii der Wiedergabe.

Zählwerkfunktion

Im Videorecorder-Display oder im Fernseher-Bildschirm kann die Anzeige für die Uhrzeit, den Linear-Zeitzähler oder die Bandrestzeit geprüft werden.

Vorbereitung
Stellen Sie den VTR/TV-Wahlschalter auf "VTR". **1**

Zählwerkanzeigen

Die **COUNT**-Taste dient zum Umschalten des Anzeigeninhalts im Videorecorder-Display in der folgenden Reihenfolge: **19**

→ Linearer Zeitzähler (HMS)
↓
Bandrestzeit (TR)
↓
Uhrzeit

Die gleichen Anzeigen erscheinen durch Drücken der **DISPLAY**-Taste auch im Fernsehbildschirm. Sie lassen sich durch Drücken der **COUNT**-Taste umschalten. **31** **19**

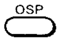
Rückstellung des Linear-Zeitzählers auf "0H00M00S"
Der Zähler wird beim Ausschieben einer Videocassette automatisch auf 0H00M00S rückgestellt. Falls Sie den Zähler zu einem anderen Zeitpunkt rückstellen möchten, z.B. zu Beginn einer neuen Aufnahme, drücken Sie einfach die **COUNTER RESET**-Taste. **18**

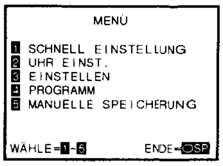
Hinweise
- Der Linear-Zeitzähler ist innerhalb von unbespielten Bandabschnitten nicht betriebsfähig.
- Sobald die Cassette ausgeschoben oder der Videorecorder ausgeschaltet wird, schaltet das Display auf Uhranzeige zurück.
- Wenn das Band über "0H00M00S" hinaus zurückgespult wird, erscheint " – " im Videorecorder-Display.
- Die angezeigten Zeitdaten sind Annäherungswerte.

Restliche Bandlaufzeit

1 Schalten Sie den Videorecorder ein, und legen Sie eine Cassette ein. **E**

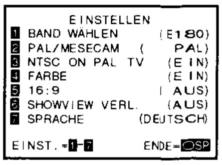
2 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm erscheint. **23**





3 Drücken Sie die **Zifferntaste 3**, und wählen Sie "EINSTELLEN". **4**

③



EINSTELLEN
1 BAND WÄHLEN (E180)
2 PAL/MESECAM (PAL)
3 NTSC ON PAL TV (EIN)
4 FARBE (EIN)
5 16:9 (AUS)
6 SHOWVIEW VERL. (AUS)
7 SPRACHE (DEUTSCH)
EINST.=1~7 ENDE=OSP

4 Drücken Sie die **Zifferntaste 1**, und wählen Sie eine Bandlänge. **4**

①
E180: Für ein E-195 oder kürzere Bänder
E240: Für E-210 oder E240 Bänder
E260: Für ein E-260 Band
E300: Für ein E-300 Band

5 Drücken Sie die **OSP**-Taste zweimal. **23**

6 Drücken Sie die **COUNT**-Taste. **19**
Die restliche Bandzeit erscheint im Display.

Hinweise
- Bei der angezeigten Bandrestzeit handelt es sich um einen Annäherungswert.
- Die Bandrestzeit wird nach der Bandgeschwindigkeit (SP-, LP oder SLP-Bandgeschwindigkeit) und nach dem Cassettentyp berechnet.
- Die Bandlänge muß vorher in Schritt *4* richtig eingestellt werden, um eine richtige Bandrestzeitanzeige zu erhalten.

BILDSCHIRMANZEIGE / 16:9 KOMPATIBILITÄT (BREITBILDFERNSEHEN)

Meldungen und Anzeigen auf dem Bildschirm

Durch Drücken der **DISPLAY**-Taste kann die Betriebsartanzeige abgerufen werden. Wenn Sie diese Taste erneut drücken, erlischt die Anzeige, und nur die Zählwerkanzeige (Zählwerk, Bandrestzeit, Uhr) bleibt auf Bildschirm. Um diese verschwinden zu lassen, drücken Sie die **DISPLAY**-Taste erneut. **31**

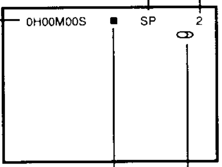
Speicherplatznummer

Bandgeschwindigkeit zur Aufnahme (SP/LP/SLP)

Zählwerkanzeige

- Lineare Zeitzählung
- Bandrestzeit
- Uhrzeit

Bei jedem Drücken der **COUNT**-Taste wird die Anzeige umgeschaltet. **19**



Die Anzeige variiert mit der Betriebsart.

Cassettenauswurf	⏏
Stopp	■
Zeitrafferwiedergabe Vorspulen Vorwärts-Bildsuchlauf	▶▶
Rückspulen Rückwärts-Bildsuchlauf	◀◀
Aufnahme	●
Aufnahmepause	❚❚●
Wiedergabe	▶
Reverse-Wiedergabe	◀
Standbild Einzelbild	❚❚
Zeitlupenwiedergabe	❚▶
Reverse-Zeitlupenwiedergabe	◀❚

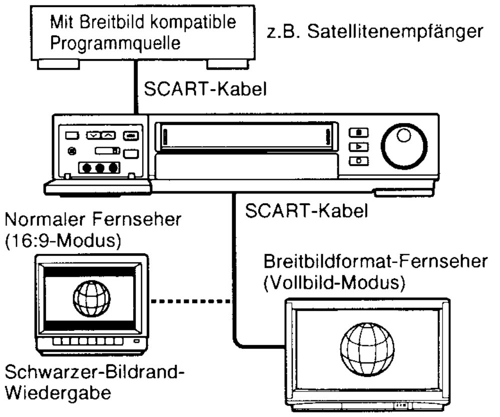
Die Anzeige variiert je nach der empfangenen STEREO/ZWEISPRACHIG-Sendung.

STEREO/ZWEISPRACHIG-Sendung	
STEREO-Fernsehprogramm	ꝏ
ZWEISPRACHIG-Fernsehprogramm (Ausstrahlung in einer anderen Sprache)	I / II
Normales Fernsehprogramm (Ton in Mono)	Leuchtet nicht

Außer den obigen Anzeigen kann der Videorecorder noch weitere Angaben im Bildschirm erscheinen lassen, wie Index-Suchlauf. Einzelheiten dazu siehe betreffende Seiten der Bedienungsanleitung.

16:9 Kompatibilität (Breitbildfernsehen)

Dieser Videorecorder justiert das Bild des empfangenen Fernsehprogramms, um den ganzen Breitbildschirm auszufüllen, wenn ein Breitformat-Fernsehprogramm über den angeschlossenen Satellitenempfänger etc. gesendet wird.


Mit Breitbild kompatible Programmquelle
z.B. Satellitenempfänger
SCART-Kabel
SCART-Kabel
Normaler Fernseher (16:9-Modus)
Breitbildformat-Fernseher (Vollbild-Modus)
Schwarzer-Bildrand-Wiedergabe

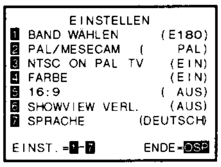
Automatischer Vollbild-Modus

Wichtig
Breitbildformat-kompatible Geräte müssen am Videorecorder mit einem SCART-Kabel angeschlossen werden.

Einstellung auf 16:9 Breitbildformat

1. Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm erscheint. **23**
2. Drücken Sie die **Zifferntaste 3**, um "EINSTELLEN" zu wählen. **4**
3. Drücken Sie die **Zifferntaste 5**, um "16:9" zu wählen. **4**

⑤



```
          EINSTELLEN
1 BAND WÄHLEN          (E180)
2 PAL/MESECAM    (      PAL)
3 NTSC ON PAL TV       (EIN)
4 FARBE                (EIN)
5 16:9              (  AUS)
6 SHOWVIEW VERL.       (AUS)
7 SPRACHE         (DEUTSCH)

EINST.=1-7          ENDE=OSP
```

AUS:	Einstellen, wenn Sie keinen Breitbildformat-Fernseher haben.
AUTO:	Einstellen, wenn Sie einen Breitbildformat-Fernseher verwenden. Der Videorecorder erkennt Programme im Breitbildformat und normale Programme bei Wiedergabe und Aufnahme automatisch.
EIN:	Der Videorecorder ist bei Wiedergabe und Aufnahme in dem Modus, der mit dem 16:9 Breitbildformat kompatibel ist. Einstellen, wenn der Videorecorder Breitbild-Fernsehprogramme in "AUTO"-Einstellung nicht erkennt.

4. Die **OSP**-Taste zweimal drücken, um zum normalen Fernsehbildschirm zurückzuschalten. **23**

4 1 *AUFNAHME*

AUFNEHMEN EINES FERNSEHPROGRAMMS

In diesem Abschnitt wird das grundlegende Aufnahmeverfahren beschrieben.

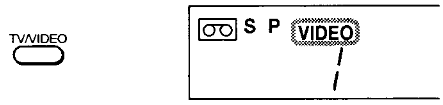
Einstellung bei Aufnahme

Vorbereitung

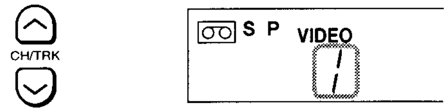
- Schalten Sie den Videorecorder ein.
- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR". 1
- Stellen Sie das Videosystem richtig ein.

1 Legen Sie eine Videocassette mit vorhandenem Löschschutzzapfen ein. E

2 Drücken Sie die **TV/VIDEO**-Taste, so daß die Anzeige "VIDEO" im Videorecorder-Display erscheint. 2

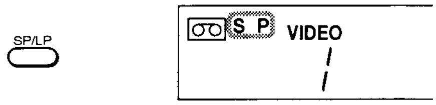


3 Wählen Sie das Fernsehprogramm (Speicherplatznummer) zur Aufnahme mit den **CHANNEL**-Tasten am Videorecorder oder den **CH/TRK**-Taste oder **Zifferntasten** am Fernbedienungsteil. B 20 4



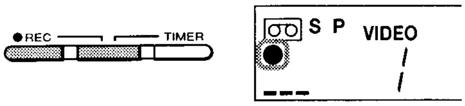
Falls anstelle der Speicherplatznummer "L1", "L2" oder "SA" erscheint, drücken Sie die **INPUT SELECT**-Taste, so daß stattdessen die Speicherplatznummer erscheint. 3

4 Drücken Sie die **SP/LP**-Taste zur Wahl der Aufnahmegeschwindigkeit. 12



SP: Für normale Aufnahmen mit optimaler Bild- und Tonqualität.
LP: Für doppelte Aufnahmezeit, jedoch mit verminderter Bild- und Tonqualität gegenüber dem SP-Bandgeschwindigkeit.

5 Drücken Sie die **REC**-Taste am Videorecorder oder beide **REC**-Tasten am Fernbedienungsteil gleichzeitig. Die Aufnahme startet. A 7



6 Drücken Sie die **STOP**-Taste, wenn die Aufnahme beendet ist. 29 N

Betrachten eines Fernsehprogramms bei gleichzeitiger Aufnahme eines anderen

1) Drücken Sie die **TV/VIDEO**-Taste, so daß die Anzeige "VIDEO" im Videorecorder-Display verschwindet. 2

2) Wählen Sie einen anderen Kanal mit dem Kanalwähler am Fernseher.

Hinweis

Zum Überwachen des momentan aufgezeichneten Programms drücken Sie die TV/VIDEO-Taste, so daß die "VIDEO"-Anzeige im Videorecorder-Display erscheint. Wählen Sie den Videokanal oder den Video-Eingangsmodus am Fernseher.

Überspringen von ungewünschten Szenen bei der Aufnahme

Drücken Sie die **PAUSE/STILL**-Taste zum Unterbrechen der Aufnahme. Zum Fortsetzen der Aufnahme drücken Sie die **PAUSE/STILL**-Taste erneut. 26 F

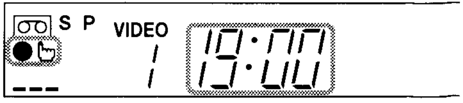
Hinweis

Wenn der Videorecorder länger als 10 Minuten auf Aufnahmepause geschaltet bleibt, schaltet er automatisch auf Stoppbetrieb um.

Sofort-Timeraufnahme

Bei der Aufnahme können Sie die Aufnahmeendzeit eingeben.
Drücken Sie die **REC**-Taste am Videorecorder, um die Aufnahmeendzeit einzugeben. A
Bei jedem Drücken der Taste wird die Aufnahmeendzeit im Videorecorder-Display wie folgt umgeschaltet:

Beispiel



REC drücken	Aufnahme-Ausschaltzeit
einmal	nächste Stunde oder halbe Stunde
zweimal	1 Stunde
dreimal	1 Stunde 30 Minuten
:	:
achtmal	4 Stunden
neunmal	Sofort-Timeraufnahme aufgehoben (– : – –)

Wenn die eingegebene Aufnahmeendzeit erreicht ist, stoppt die Aufnahme, und der Videorecorder schaltet automatisch aus.

Hinweise

- Zum Löschen einer laufenden Sofort-Timeraufnahme drücken Sie die STOP-Taste. N
- Zum Verlängern einer laufenden Sofort-Timeraufnahme drücken Sie die REC-Taste am Videorecorder. A
- Wenn die Videorecorder-Uhr nicht eingestellt ist, wird die Sofort-Timeraufnahme nicht eingeleitet.

AUFNEHMEN VON EINEM SATELLITENEMPFÄNGER

Wenn Sie einen Satellitenempfänger verwenden, kann dieser an den Videorecorder angeschlossen werden, um ein Satellitenprogramm aufzuzeichnen.

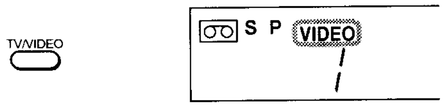
Aufnahmeverfahren

Vorbereitung

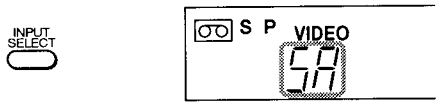
- Schalten Sie den Videorecorder ein.
- Wählen Sie den Videokanal oder den Videoeingangsmodus am Fernseher.
- Stellen Sie den VTR/TV-Wahlschalter auf “VTR”. 1
- Stellen Sie sicher, daß der Sat-Empfänger richtig mit einem SCART-Kabel an den Videorecorder angeschlossen ist, und schalten Sie ihn ein.

1 Legen Sie eine Videocassette mit vorhandenem Löschschutzzapfen ein. Ⓔ

2 Drücken Sie die **TV/VIDEO**-Taste, so daß die Anzeige “VIDEO” im Videorecorder-Display erscheint. 2



3 Drücken Sie die **INPUT SELECT**-Taste, so daß “SA” im Videorecorder-Display erscheint. 3

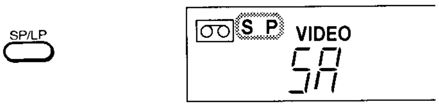


Bei jedem Drücken der **INPUT SELECT**-Taste wechselt der Anzeigeninhalt wie folgt: 3

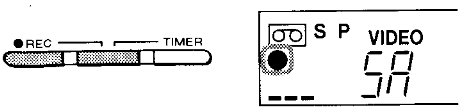
Fernseher (Speicherplatznummer) → L1 → L2 → SA (Satellit)

4 Wählen Sie das Satellitenprogramm, das Sie aufnehmen möchten, durch Drücken der Senderwahltaste am angeschlossenen Satellitenempfänger.
Achten Sie darauf, daß das gewählte Programm auf dem Fernsehbildschirm erscheint.

5 Drücken Sie die **SP/LP**-Taste zur Wahl der Aufnahmegeschwindigkeit. 12



6 Drücken Sie die **REC**-Taste am Videorecorder oder beide **REC**-Tasten am Fernbedienungsteil gleichzeitig. Ⓐ 7
Die Aufnahme startet.



7 Drücken Sie zum Beenden der Aufnahme die **STOP**-Taste. 29 Ⓝ

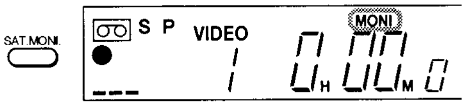
Satelliten-Monitorfunktion

Empfang eines Satellitenprogramms während der Aufnahme eines anderen Programms im Wiedergabe- oder Stoppbetrieb ist möglich.

Wichtig
Stellen Sie sicher, daß der Satellitenempfänger und der Fernseher über die SCART-Buchse am Videorecorder angeschlossen sind.

■ Empfang eines Satellitenprogramms während der Aufnahme eines Fernsehprogramms

1) Nehmen Sie ein Fernsehprogramm auf, und drücken Sie dabei die **SAT.MONI.**-Taste. 30
Die Satellitenanzeige “MONI” erscheint.



Bei jedem Drücken der **SAT.MONI.**-Taste erscheint oder verschwindet die Anzeige. 30

2) Wählen Sie das Satellitenprogramm, das Sie empfangen möchten, am angeschlossenen Satellitenempfänger.

■ Empfang eines Satellitenprogramms während der Videorecorder im Wiedergabe- oder Stoppbetrieb ist

1) Drücken Sie die **SAT.MONI.**-Taste, so daß die Satellitenanzeige “MONI” im Videorecorder-Display erscheint. 30

2) Drücken Sie die **TV/VIDEO**-Taste, so daß die “VIDEO”-Anzeige im Videorecorder-Display erscheint. 2

3) Wählen Sie das Satellitenprogramm, das Sie empfangen möchten, am angeschlossenen Satellitenempfänger.

Hinweise

- Im Bildschirmanzeige-Betrieb (z.B. wenn der MENÜ-Bildschirm erscheint) ist diese Funktion deaktiviert.
- Die Satelliten-Monitorfunktion steht auch im Timerprogramm-Aufnahmemodus zur Verfügung oder im Sofort-Timer modus.

■ Empfang eines Fernsehprogramms während der Aufnahme eines Satellitenprogramms

1) Nehmen Sie ein Satellitenprogramm auf, und drücken Sie dabei die **TV/VIDEO**-Taste, so daß die Anzeige “VIDEO” im Videorecorder-Display erscheint. 2

2) Wählen Sie am Fernseher das Fernsehprogramm, das Sie empfangen möchten.

PROGRAMMIERBARE TIMER-AUFNAHME

Der programmierbare Timer ermöglicht die Aufnahme von bis zu 6 verschiedenen Programmen im Verlauf eines Monats.

Timerprogrammierung

Vorbereitung

- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen sie den VTR/TV-Wahlschalter auf “VTR”. **1**
- Schalten Sie den Videorecorder ein.
- Vergewissern Sie sich, daß die Uhrzeit korrekt eingestellt ist.
- Stellen Sie das Videosystem richtig ein.

Beispiel

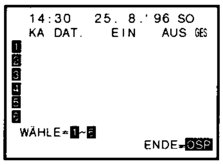
Zur Aufnahme eines Programms eines im Speicherplatz 1 abgelegten Senders (z.B. ARD) mit SP-Bandgeschwindigkeit von 21:30 bis 22:00 am 30. August, wenn heute der 25. August ist.

1 Legen Sie eine Videocassette mit vorhandenem Löschschutzzapfen ein. **E**

2 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm erscheint. **23**

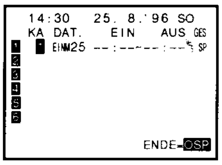
3 Drücken Sie die **Zifferntaste 4**, um “PROGRAMM” zu wählen. **4**

④


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 2 3 4 5 6
WÄHLE=1-6
ENDE=OSP

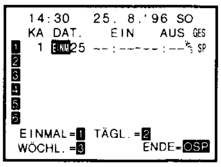
4 Wählen Sie die Programmnummer 1. **4**

①


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM25 --:-----:-- SP
ENDE=OSP

5 Wählen Sie die Speicherplatznummer 1, indem Sie die **Zifferntasten 0** und **1** drücken. **4**

⓪→①


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM25 --:-----:-- SP
EINMAL=1 TÄGL.=2
WÖCHL.=3 ENDE=OSP

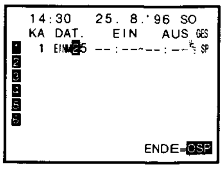
- Zur Nutzung von einem an den Videorecorder angeschlossenen Gerät betätigen Sie die **INPUT SELECT**-Taste wie folgt, so daß “L1”, “L2” oder “SA” erscheint: **3**

L1: Zum Aufnehmen über die IN 1/OUT (SCART) -Buchse an der Rückseite.
L2: Zum Aufnehmen über die LINE IN 2-Buchsen an der Vorderseite.
SA: Zum Aufnehmen vom Sat-Empfänger, der an die SAT./DECODER (SCART)-Buchse an der Rückseite angeschlossen ist.

Korregieren von Eingabefehlern:
Drücken Sie die SHIFT-Taste (←) um die zu korregierende Zeiteinheit vorzuschalten, oder die SHIFT-Taste (→), um sie zurückzuschalten. **22**

6 Wählen Sie ein einmalig gesendetes Programm. **4**

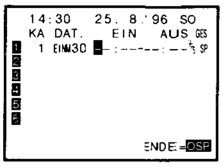
①


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM25 --:-----:-- SP
ENDE=OSP

Sie können auch auf Täglich- oder Wöchentlich-Timeraufnahme schalten.

7 Geben sie das Aufnahmedatum ein. **4**

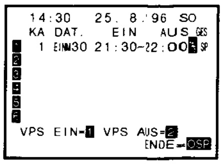
③→⓪


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM30 --:-----:-- SP
ENDE=OSP

8 Stellen Sie die Aufnahmestartzeit und die Aufnahmeendzeit ein. **4**

②→①→③→⓪

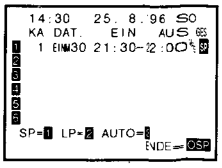
②→②→⓪→⓪


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM30 21:30~22:00 SP
VPS EIN=1 VPS AUS=2
ENDE=OSP

9 Drücken Sie zum Aktivieren der VPS-Funktion die **Zifferntaste 1**: wenn VPS nicht aktiviert werden soll, drücken Sie die **Zifferntaste 2**. **4**

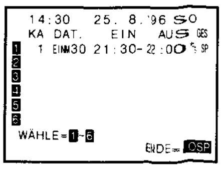
Hinweis
Wenn Sie den Videorecorder auf Satellitenempfänger-Steuerung eingestellt haben (SA wird angezeigt) in Schritt *5* können keine Eingaben für VPS gemacht werden.

①


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM30 21:30~22:00
SP=1 LP=2 AUTO=3
ENDE=OSP

10 Programmieren Sie die Bandgeschwindigkeit (SP). **4**

①


14:30 25. 8.'96 SO
KA DAT. EIN AUS GES
1 EINM30 21:30~22:00 SP
WÄHLE=1-6
ENDE=OSP

(Für Bandgeschwindigkeit “AUTO”.)

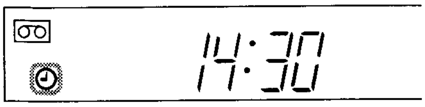
Wenn Sie in Schritt *9* VPS eingeben, kann “AUTO” nicht gewählt werden.
Verwenden Sie entweder VPS oder AUTO-Geschwindigkeit.

Zum Einstellen eines anderen Programms folgen Sie Schritt *4* bis *10* oben. In Schritt *4* wählen Sie eine andere Programmnummer.

11 Drücken Sie die **OSP**-Taste. **23**
Die Programmierung ist hiermit beendet.

12 Drücken Sie die beiden **TIMER**-Tasten gleichzeitig. **25**

Die Netzversorgung zum Gerät wird ausgeschaltet, und der Videorecorder ist auf Timer-Bereitschaftsmodus gestellt.

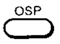


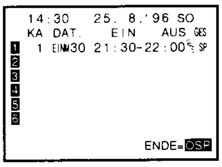
Tägliche und wöchentliche Timeraufnahme

- **Tägliche Timeraufnahme** **4**
  Zur Aufnahme von Programmen, die von Montag bis Freitag täglich zur gleichen Stunde auf dem gleichen Fernsehkanal gesendet werden.
  Drücken Sie in Bedienungsschritt *6* die **Zifferntaste 2** zur Wahl von "TÄGL.".
- **Wöchentliche Timeraufnahme** **4**
  Zur Aufnahme von Programmen, die jede Woche auf dem gleichen Fernsehkanal gesendet werden.
  Drücken Sie in Bedienungsschritt *6* die **Zifferntaste 3** zur Wahl von "WÖCHL.", und dann Drücken die **Zifferntasten 1** zu **7**, um einen Wochentag zu wählen.

Überprüfung der Timerprogramme (während der Timer-Programmaufnahme)

Drücken Sie die **OSP**-Taste. **23**
Der Bestätigungsbildschirm erscheint.





```
  14:30   25. 8.'96 SO
  KA DAT.    EIN   AUS GES
1  1 EINM30 21:30-22:00 SP
2
3
4
5
6
                 ENDE=OSP
```

Nach ca. 30 Sekunden verschwindet der Bildschirm.

Ändern/Löschen der Timerprogramme

1) Wenn die Anzeige ⊙ erscheint, die beiden **TIMER**-Tasten drücken, um sie auszuschalten, und dann den Videorecorder durch Drücken der **ON/STANDBY**-Taste einschalten. **25** **17**
2) Mit Schritt *2* bis *11* die jeweiligen Punkte anders einstellen.
   - Zum Löschen eines Programms wählen Sie die betreffende Nummer des Timerprogramms, das gelöscht werden soll, in Schritt *4* und drücken die **CANCEL**-Taste. Die Zeile wird damit gelöscht. **24**
3) Drücken Sie die beiden **TIMER**-Tasten, um auf Timerbereitschaft zurückzuschalten. **25**

Aufnahme oder Wiedergabe im Timer-Bereitschaftsmodus

Drücken Sie die beiden **TIMER**-Tasten gleichzeitig, um den Timer-Bereitschaftsbetrieb aufzuheben, und drücken Sie die **ON/STANDBY**-Taste, um den Videorecorder einzuschalten. Der Videorecorder kann jetzt betrieben werden. **25** **17**

- Drücken Sie die beiden **TIMER**-Tasten erneut, um den Videorecorder nach der Bedienung auf Timer-Bereitschaft zurückzuschalten. **25**

VPS (Video-Programm-System)

Viele Fernsehsender strahlen zusätzlich zu den Fernsehprogrammen VPS-Signale aus. Der Videorecorder kann die Timeraufnahme mit Hilfe dieser Signale beginnen und beenden, so daß immer sichergestellt ist, daß ein vollständiges Programm aufgezeichnet wird, wobei Zeitverschiebungen, Verlängerungen oder Unterbrechungen des Programms berücksichtigt werden. Wenn das Fernsehprogramm während der VPS-Timeraufnahme unterbrochen wird, wird die Aufnahme automatisch fortgesetzt, sobald das Programm wieder beginnt.

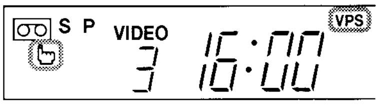
Wichtig
Die VPS-Funktion arbeitet nur, wenn VPS-Programme von dem betreffenden Sender ausgestrahlt werden. Wenn der Sender keine VPS-Signale ausstrahlt, geschieht die Timer-Aufnahme automatisch, auch wenn sie im VPS-Modus programmiert wurde.

Fehleranzeige
- Die Anzeige "E" (Fehler) erscheint im Videorecorder-Display beim Drücken der TIMER-Tasten, wenn:
  — keine Cassette eingelegt ist.
  — die eingelegte Cassette keinen Löschschutzzapfen hat.
  — kein Timerprogramm eingestellt ist.
  In diesen Fällen ist Aufnahme unmöglich.
- Näheres über die Fehlermeldungen bei Stromausfall oder überlappenden Programmen.

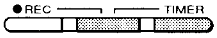
Sofort-Zeituhraufnahme mit VPS

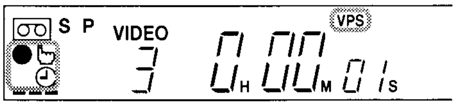
Der Videorecorder kann Fernsehprogramme mit Hilfe von VPS-Signalen aufnehmen. Mit dem VPS-System erkennt der Videorecorder Änderungen von Sendezeiten. Nach der Aufnahme schaltet der Videorecorder automatisch aus.

1) Drücken Sie die **VPS**-Taste am Fernbedienungsteil im Aufnahmebetrieb, Aufnahmepausebetrieb oder Stoppbetrieb (die VPS-Anzeige und Sofortaufnahme-Anzeige leuchten). **32**



2) Drücken Sie innerhalb von 10 Sekunden die beiden **TIMER**-Tasten gleichzeitig. **25**
   Die VPS-Aufnahme beginnt.





Das VPS-System stellt die Ausschaltzeit automatisch ein.

Hinweise
- Wenn keine VPS-Signale ausgestrahlt werden, funktioniert die automatische VPS-Ausschaltfunktion nicht. In diesem Fall erscheint die "E"-Anzeige im Display des Videorecorders.
- Wenn die Aufnahme endet, schaltet der Videorecorder automatisch aus (Bereitschaftsbetrieb).
- Zum Aufheben der VPS-Funktion drücken Sie die beiden TIMER-Tasten.

STEUERUNG VON SATELLITENKANÄLEN

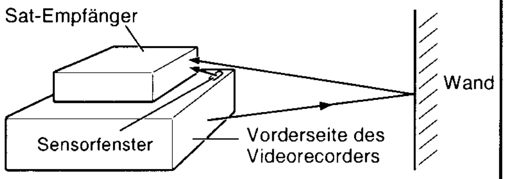
Ihre Sat-Kanäle können bei diesem Videorecorder über den angeschlossenen Sat-Empfänger auf gleiche Weise wie Fernsehkanäle gewählt und umgestellt werden.

Einstellung zur Steuerung von Satellitenkanälen

Sie können Satellitenkanäle über diesen Videorecorder umstellen.
Es ist auch möglich, die Satellitenkanäle entsprechend der Programmeinstellung bei Timerprogrammaufnahme automatisch zu ändern.

Wichtig

Der Sat-Empfänger muß auf dem Fernseher aufgestellt werden, wie unten gezeigt. Nicht das Sensorfenster verdecken.



Die Infrarotsignale treten aus dem Sensorfenster an der Vorderseite des Videorecorders aus. Sie werden von Wänden und Gegenständen im Raum reflektiert und vom Sat-Empfänger empfangen. Der Videorecorder sendet auch bei Timerprogramm-Aufnahme Infrarotsignale zum Sat-Empfänger aus.

Hinweis

Wenn die Kanäle nicht richtig gesteuert werden können, weil das Infrarotsignal nicht den Sat-Empfänger erreicht, die Position des Sat-Empfängers am Videorecorder ändern, so daß er das Signal empfangen kann.

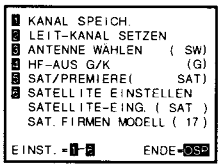
Vorbereitung

- Den angeschlossenen Sat-Empfänger eingeschaltet lassen.
- Sicherstellen, daß der Sat-Empfänger richtig an den Videorecorder angeschlossen ist.
- Den Videokanal oder den Videoeingangsmodus am Fernseher wählen.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR". **1**

1 Drücken Sie die **OSP**-Taste, um den MENÜ-Bildschirm abzurufen. **23**

2 Drücken Sie die **Zifferntaste 5**, um "MANUELLE SPEICHERUNG" zu wählen. **4**

⑤



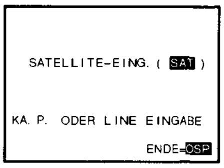
```
1 KANAL SPEICH.
2 LEIT-KANAL SETZEN
3 ANTENNE WÄHLEN    ( SW)
4 HF-AUS G/K         (G)
5 SAT/PREMIERE(     SAT)
6 SATELLITE EINSTELLEN
  SATELLITE-EING. ( SAT )
  SAT. FIRMEN MODELL ( 17 )

EINST. =1-6        ENDE=OSP
```

3 Stellen Sie "SAT/PREMIERE" auf "SAT", indem Sie die **Zifferntaste 5** drücken. **4**

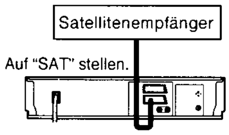
4 Drücken Sie die **Zifferntaste 6**, um "SATELLITE EINSTELLUNG" zu wählen. **4**

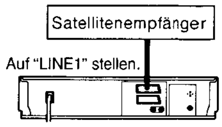
5 Stellen Sie die Senderplatznummer oder den Line-Eingangsmodus mit der **INPUT SELECT**-Taste je nach dem Sat-Empfänger-Anschluß ein. **3**

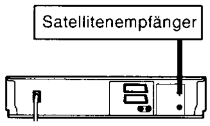
INPUT SELECT



```
SATELLITE-EING. ( SAT )

KA. P.  ODER LINE EINGABE

                 ENDE=OSP
```







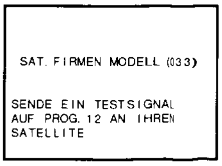
Geben Sie mit den Zifferntasten die Speicherplatznummer ein, die Sie für den Satelliten-Ausgang gewählt haben.

6 Die **OSP**-Taste drücken. **23**

7 Drei Ziffern des Markencodes für den Sat-Empfänger mit den **Zifferntasten** eingeben. Siehe Markencode-Tabelle. **4**

Beispiel: Eingabe des Markencodes 33.

⓪→③→③



```
SAT. FIRMEN MODELL (033)

SENDE EIN TESTSIGNAL
AUF PROG. 12 AN IHREN
SATELLITE
```

Wenn der Markencode eingegeben wird, sendet der Videorecorder ein Testsignal zum Sat-Empfänger, um die richtige Eingabe des Markencodes zu prüfen. Das Signal bewirkt Einstellung des Sat-Kanals auf 12. Wenn der Kanal 12 im Display des Sat-Empfängers angezeigt wird, wurde der Markencode richtig eingestellt.
Mehrere Codes können für eine Marke zugewiesen werden. Geben Sie einen nach dem anderen ein, bis die Kanalanzeige 12 beträgt.

8 Drücken Sie die **OSP**-Taste zweimal zum Beenden. **23**

Steuerung von Satellitenkanälen

■ Mit der Fernbedienung dieses Videorecorders

1) Drücken Sie die **SAT.CONT.**-Taste, so daß "SAT" im Display des Videorecorders erscheint. **33**

2) Wählen Sie einen gewünschten Kanal mit den Zifferntasten. Die Einsatzweisen können unterschiedlich sein. Prüfen Sie die Steuerung des vorhandenen Sat-Empfängers. **4** **21**

Beispiel: Wählen von Kanal 3:	Wählen von Kanal 16:
• 0→3	• 1→6
• 0→3→ENTER	• 1→6→ENTER
• ENTER→3	• ENTER→ENTER→1→6

> **Wichtig**
> Manche Sat-Empfänger reagieren nicht auf alle oben beschriebenen Steuervorgänge, oder sie können mit diesem Fernbedienungsteil überhaupt nicht gesteuert werden. In diesem Fall den Sat-Empfänger mit seinem eigenen entsprechenden Fernbedienungsteil bedienen.

Hinweise
- Bei jedem Drücken der SAT.CONT.-Taste wird diese Funktion ein- und ausgeschaltet.
- Um eine Senderplatznummer im Display des Videorecorders erscheinen zu lassen, nachdem diese Funktion aufgehoben worden ist, drücken Sie die INPUT SELECT-Taste.

■ Automatisches Ändern von Satellitenkanälen bei Timeraufnahme

Bei der Timeraufnahme-Programmierung drücken Sie die **SAT.CONT.**-Taste, so daß SA im Bild erscheint, und geben dann den gewünschten Satellitenkanal mit den **Zifferntasten** ein. Befolgen Sie Schritt **1)** und **2)** oben und prüfen Sie, ob die Kanäle richtig gewählt sind. **33** **4**

Hinweis
Lassen Sie die Sat-Empfänger-Funktion eingeschaltet, auch wenn der Videorecorder auf Timerprogrammaufnahme geschaltet ist.

Markencode-Tabelle für Sat-Empfänger

Markenname	Markencode
TOSHIBA	17, 33
ALBA	1, 2, 9, 16, 17, 65, 66
ALDES	88
ALLSAT	9, 16, 23
AMSTRAD	3, 4, 5, 17, 55, 56, 76, 77, 89, 90, 91, 124
ARMSTRONG	17, 43
BEST/DISEXPRESS	26
BIG BROTHER	7, 8, 17
BT	17, 122, 123
BUSH	2, 9, 16, 17, 65, 66
CABLE STAR	17, 101, 102, 103, 104
CABLETIME	17, 101, 102, 103, 104
CAMBRIDGE	17, 122, 123
CHANNEL MASTER	2, 3, 10, 17
D2MAC DECODER	17, 72
DECSAT/C+SAT.	72
DRAKE	17, 45
ECHOSTAR	13, 14, 17, 92, 93, 94
FERGUSON	9, 15, 16, 17, 23, 38, 39, 59, 108
FUBA	49, 69, 70, 78, 96
GI	105, 106, 107, 108, 110
GRUNDIG	17, 19, 28, 71, 125
HIRSCH MANN	11, 19, 47, 48
HUTH	74
IMPULSE	105, 106, 107, 108, 110
ITT/NOKIA	17, 26, 27, 50, 51, 52
JERROLD	105, 106, 107, 108, 110
JVC	17, 122, 123
KATHREIN	12, 16, 20, 24, 29, 31, 46, 73, 97
LENCO	17, 49
MACOM	111
MASPRO	17, 20, 64, 67
MATSUI	17, 125

Markenname	Markencode
MIMTEC	21
MORGAN	43
NAGAI PALSAT	95, 96
NEC	17, 22, 57
NETWORK	9, 16, 17
NORDMENDE	17
OAK	112, 113, 114, 115
PACE	9, 16, 17, 23, 38
PANASONIC	17, 61
PHILIPS	16, 17, 24, 46, 73
REDIFFUSION	17, 25
REVOX	17, 21
SAKURA	17, 62, 63, 68
SALORA	17, 26, 27, 50, 51, 52
SAMSUNG	17, 36
SCHWAIGER	23, 43
SCIENTIFIC ATLANTA	116, 117, 118
SIEMENS	17, 23
SENTRA	10, 17
SONY	17, 30
STRONG	31
TATUNG/NIKKO	17, 32, 54, 58, 80, 81
TECHNISAT	40, 41, 92, 93
TELEDIREKT	23
TEXSCAN	17, 119, 120
THOMSON	7, 17, 39
TRISTAR	17, 31
UNIDEN	17, 67
VIDEOTRON	17, 105, 106, 107, 108, 109, 110, 121
VIDEOWAY	105, 106, 107, 108, 109, 110, 121
VISIOPASS	16, 24, 46, 73
VORTEC	36
WISI	17, 35, 37, 44, 93

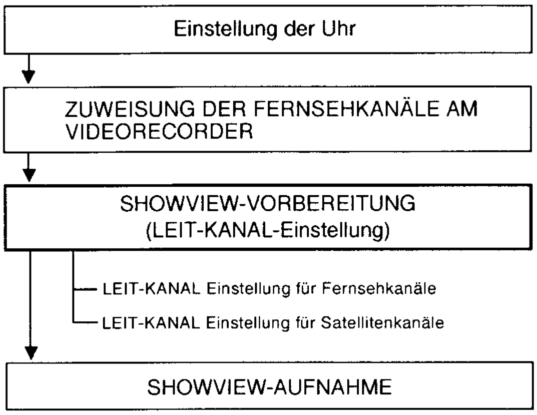
- Bei manchen Marken sind mehrere Markencodes zugewiesen.
- Bestimmte Sat-Empfänger können mit diesem Videorecorder nicht gesteuert werden.

5 SHOWVIEW-VORBEREITUNG

SHOWVIEW ist ein Timer-basiertes Aufnahmesystem für leichtere Programmierung, bei dem Sie nur eine SHOWVIEW-Nummer für ein gewünschtes Programm eingeben müssen. In diesem Kapitel wird die Vorbereitung zur SHOWVIEW-Aufnahme erläutert.

Information

Sie können Timeraufnahme sehr leicht mit dem SHOWVIEW-Programmiersystem dieses Videorecorders ausführen. Vor einer Aufnahme mit SHOWVIEW müssen die LEIT-KANÄLE im Videorecorder programmiert werden.



Einstellung der Uhr

ZUWEISUNG DER FERNSEHKANÄLE AM VIDEORECORDER

SHOWVIEW-VORBEREITUNG
(LEIT-KANAL-Einstellung)

LEIT-KANAL Einstellung für Fernsehkanäle

LEIT-KANAL Einstellung für Satellitenkanäle

SHOWVIEW-AUFNAHME

LEIT-KANAL-Tabelle

*: Speicherplatz, auf welchem der Fernsehsender in Ihrem Videorecorder abgespeichert wurde.

Fernsehsender	LEIT KANAL	*	Sat-Kanäle	LEIT KANAL	
ARD	001	ex. 1	SAT. 1	005	
ZDF	002	ex. 2	3 SAT	118	
WEST 3	017	ex. 3	EUROSPORT	107	
RTL	004	ex. 4			

Sie sollten die in Fernsehzeitschriften (Programmteil) abgedruckten LEIT-KANÄLE hier eintragen. Für einen ersten schnellen Start mit ihrem Videorecorder haben wir für Sie bereits einige Sender ab Werk einprogrammiert (Siehe Tabelle Beiblatt). Den Empfangskanal sollten Sie bitte gemäß der Region in der Sie den Recorder benutzen einstellen.

LEIT-KANAL Einstellung für Fernsehkanäle

Vorbereitung

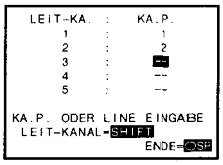
- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR". **1**
- Stellen Sie das Videosystem richtig ein.

1 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**

2 Drücken Sie die **Zifferntaste 5**, um "MANUELLE SPEICHERUNG" zu wählen. **4**

3 Drücken Sie die **Zifferntaste 2**, um "LEIT-KANAL SETZEN" zu wählen. **4**

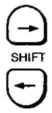
②

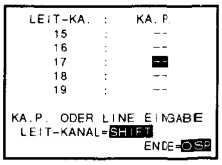


```
LEIT-KA.  :  KA.P.
    1     :     1
    2     :     2
    3     :    --
    4     :    --
    5     :    --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
              ENDE=OSP
```

4 Drücken Sie die **SHIFT**-Tasten zur Wahl eines "LEIT-KA." entsprechend der links vorbereiteten Tabelle. **22**

Beispiel: Einstellen des LEIT-KANALS 017 für die WEST 3.



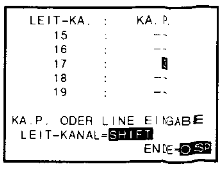


```
LEIT-KA.  :  KA.P.
   15     :    --
   16     :    --
   17     :    --
   18     :    --
   19     :    --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
              ENDE=OSP
```

5 Tragen Sie die Speicherplatznummer (1 bis 99), unter der der Fernsehsender am Videorecorder eingegeben werden soll, in der Spalte "KA. P." ein.

Beispiel: Für WEST 3 in Speicherplatznummer 3 geben Sie eine 3 in der Spalte "KA. P." ein, unter Verwendung der **Zifferntasten**. **4**

⓪→③



```
LEIT-KA.  :  KA.P.
   15     :    --
   16     :    --
   17     :     3
   18     :    --
   19     :    --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
              ENDE=OSP
```

6 Zum Einstellen des LEIT-KANALs für andere Fernsehsender folgen Sie Schritt *4* und *5*.

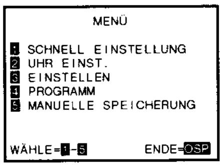
7 Drücken Sie die **OSP**-Taste zweimal, um auf normales Fernsehbild zurückzuschalten. Die LEIT-KANAL-Einstellung ist damit abgeschlossen. **23**

LEIT-KANAL-Einstellung für Satellitenkanäle (mit Sat-Empfänger)

Diese Einstellung ist erforderlich, um eine SHOWVIEW-Aufnahme von Satelliten-Kanälen über einen Sat-Empfänger vorzunehmen.

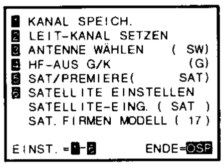
Beispiel **Einstellen des LEIT-KANALS 107 für die EUROSPORT.**

1 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**



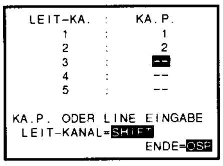
```
              MENÜ

1 SCHNELL EINSTELLUNG
2 UHR EINST.
3 EINSTELLEN
4 PROGRAMM
5 MANUELLE SPEICHERUNG


WÄHLE=1-5            ENDE=OSP
```

2 Drücken Sie die **Zifferntaste 5**, um "MANUELLE SPEICHERUNG" zu wählen. **4**



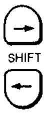
```
1 KANAL SPEICH.
2 LEIT-KANAL SETZEN
3 ANTENNE WÄHLEN       ( SW)
4 HF-AUS G/K             (G)
5 SAT/PREMIERE(        SAT)
6 SATELLITE EINSTELLEN
  SATELLITE-EING. ( SAT  )
  SAT. FIRMEN MODELL ( 17 )

EINST. =1-6         ENDE=OSP
```

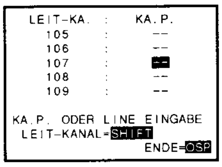
3 Drücken Sie die **Zifferntaste 2**, um "LEIT-KANAL SETZEN" zu wählen. **4**



```
LEIT-KA.  :    KA.P.
    1     :      1
    2     :      2
    3     :     --
    4     :     --
    5     :     --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
                ENDE=OSP
```

4 Rollen Sie die Zahlen weiter, um 107 mit der **SHIFT**-Taste in der Mittenposition von "LEIT-KA." einstellen. **22**





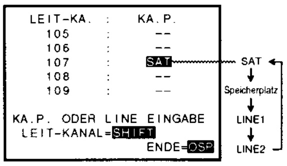
```
LEIT-KA.  :    KA.P.
   105    :     --
   106    :     --
   107    :     --
   108    :     --
   109    :     --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
                ENDE=OSP
```

Siehe die erstellte Tabelle.

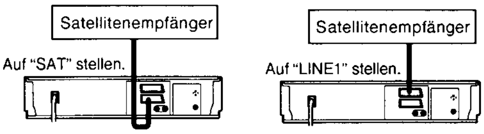
Sat-Kanäle	LEIT KANAL	
SAT. 1	005	SAT/LINE 1/RF lead
3 SAT	118	SAT/LINE 1/RF lead
EUROSPORT	107	SAT/LINE 1/RF lead

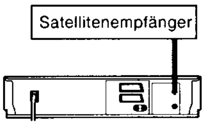
5 Stellen Sie die Spalte "KA. P." mit der **INPUT SELECT**-Taste entsprechend dem Anschluß des Sat-Empfängers und Videorecorders ein. **3**

INPUT SELECT



```
 LEIT-KA.  :    KA.P.
    105    :     --
    106    :     --
    107    :    SAT
    108    :     --
    109    :     --

KA.P. ODER LINE EINGABE
 LEIT-KANAL=SHIFT
                 ENDE=OSP
```





Geben Sie mit den Zifferntasten die Speicherplatznummer ein, die Sie für den Satelliten-Ausgang gewählt haben.

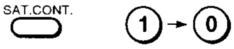
6 Um LEIT-KANÄLE für andere Satelliten-Kanäle einzustellen, wiederholen Sie Schritt *4* und *5*.

7 Drücken Sie die **OSP**-Taste dreimal zum Verlassen der Betriebsart. **23**

Jetzt können Sie SHOWVIEW-Aufnahmen von Satelliten-Kanälen machen.

LEITKANAL-Einstellung für Sat-Empfänger-Steuerung

In Schritt *5* wird der Sendername eines gewünschten Sat-Senders in der Spalte "CH P." eingegeben, indem zunächst die **SAT.CONT.**-Taste (SA erscheint) und dann die **Zifferntasten** betätigt werden. **33** **4**



Wichtig
Zur Verwendung dieser Funktion die Schritte unter "STEUERUNG VON SATELLITENKANÄLEN" ausführen.

SHOWVIEW-AUFNAHME

Nach der Einstellung für SHOWVIEW können Sie ein Programm leicht durch Eingabe der SHOWVIEW-Nummer zur Aufnahme programmieren, Die SHOWVIEW-Nummern werden in Fernsehprogrammzeitschriften etc. Veröffentlicht.

Eingabe von Zusatzzeit

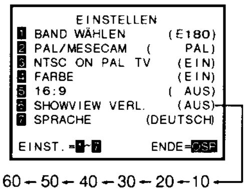
Bevor Sie eine SHOWVIEW-Aufnahme machen, können Sie eine Zusatzzeit eingeben, um einer möglichen Programmverlängerung gerecht zu werden. Die Zusatzzeit kann in 10-Minuten-Schritten bis zu insgesamt 60 Minuten eingegeben werden.

1) Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**

2) Drücken Sie die **Zifferntaste 3**, um "EINSTELLEN" zu wählen. **4**

3) Drücken Sie die **Zifferntaste 6** wiederholt, um die gewünschte Zusatzzeit einzugeben. **4**

⑥



```
           EINSTELLEN
1 BAND WÄHLEN          (E180)
2 PAL/MESECAM        (   PAL)
3 NTSC ON PAL TV       (EIN)
4 FARBE                (EIN)
5 16:9                ( AUS)
6 SHOWVIEW VERL.       (AUS)
7 SPRACHE          (DEUTSCH)

EINST.=1~7          ENDE=OSP
```

AUS ← 60 ← 50 ← 40 ← 30 ← 20 ← 10

4) Drücken Sie die **OSP**-Taste zweimal, um zum normalen Fernseherbild zurückzuschalten. **23**

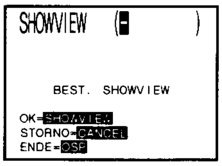
Hinweise

- Die Zusatzzeit sollte vor Beginn der SHOWVIEW-Aufnahme eingegeben werden. Die Zusatzzeit-Eingabe funktioniert nicht, wenn die Aufnahmeprogramme bereits gespeichert sind.
- Wenn Sie keine Zusatzzeit für SHOWVIEW-Aufnahmen brauchen, stellen Sie diesen Punkt im EINSTELLEN-Bildschirm auf "AUS".

SHOWVIEW-Aufnahme

1 Drücken Sie die **SHOWVIEW**-Taste. **5**
Der Videorecorder schaltet auf SHOWVIEW-Betriebsart.

SHOWVIEW
○



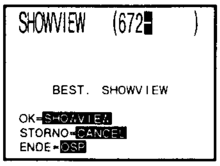
```
SHOWVIEW  (▮        )

   BEST.  SHOWVIEW

OK=SHOWVIEW
STORNO=CANCEL
ENDE=OSP
```

2 Geben Sie die SHOWVIEW-Nummer ein.

Beispiel: Zur Aufnahme des Fernsehprogrammes, das am 30. August 1996 um 21:30 beginnt und die SHOWVIEW-Nummer 672 (fiktiv) trägt, ein.

Drücken Sie die **Zifferntasten 6, 7** und **2**. **4**
Bestätigen Sie, daß die eingegebene Nummer richtig ist.

⑥→⑦→②

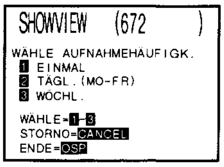


```
SHOWVIEW  (672▮     )

   BEST.  SHOWVIEW

OK=SHOWVIEW
STORNO=CANCEL
ENDE=OSP
```

- Zur Eingabe der richtigen Nummer löschen Sie alle Ziffern durch Drücken der **CANCEL**-Taste, und geben Sie die Nummer neu ein. **24**

3 Drücken Sie die **SHOWVIEW**-Taste. **5**
Der Fernsehbildschirm schaltet wie folgt um: (Bei manchen Fernsehprogrammen ist die unten gezeigte Bildschirmwahl nicht erforderlich, und es wird automatisch zu Schritt *5* weitergesprungen, wenn die SHOWVIEW-Nummer eingegeben wird.)

SHOWVIEW
○

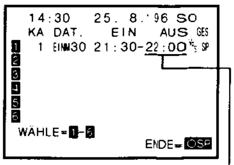


```
SHOWVIEW   (672      )
WÄHLE AUFNAHMEHÄUFIGK.
 1 EINMAL
 2 TÄGL.(MO-FR)
 3 WÖCHL.

 WÄHLE=1-3
 STORNO=CANCEL
 ENDE=OSP
```

EINMAL:	Eine einmalige Aufnahme.
TÄGL. (MO~FR):	Fernsehprogramme auf dem gleichen Sender täglich zur gleichen Zeit von Montag bis Freitag.
WÖCHL:	Fernsehprogramme auf dem gleichen Sender am gleichen Wochentag jede Woche.

4 Wenn Sie z.B. "EINMAL" wählen, drücken sie die **Zifferntaste 1**. Die EINMAL-Programmierung wird automatisch vorgenommen. Einzelheiten werden unten gezeigt. **4**

①



```
  14:30    25. 8.'96 SO
  KA DAT.     EIN    AUS GES
1  1 EIN30 21:30-22:00 VPS SP
2
3
4
5
6
 WÄHLE=1-6
                   ENDE=OSP
```

Beispiel: Wenn Sie eine 10 minütige Verlängerung im EINSTELLEN-Bildschirm wählen, zeigt die "AUS"-Anzeige 22:10.

5 Wenn Sie die VPS-Funktion verwenden, prüfen Sie ob VPS eingeschaltet ist. **32**
Bei jedem Drücken der **VPS**-Taste wird "VPS" aufleuchten oder erlöschen.

6 Zum Ändern der Bandgeschwindigkeit drücken Sie die **SP/LP**-Taste. **12**

Hinweis
Wenn VPS in Schritt *5* eingeschaltet wird, kann die Geschwindigkeit AUTO nicht gewählt werden. Verwenden Sie entweder VPS oder AUTO.

7 Drücken sie die **SHOWVIEW**-Taste.
Die Programmeinstellung ist jetzt gespeichert.

8 Zur Eingabe von anderen SHOWVIEW-Nummern folgen Sie Schritt *2* bis *7*. **5**

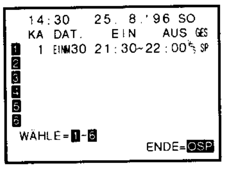
9 Schließlich drücken Sie die beiden **TIMER**-Tasten gleichzeitig. Der Videorecorder schaltet auf Timer-Bereitschaft, und die Anzeige ⏲ leuchtet auf. **25**

Bestätigen der SHOWVIEW-Timerprogramme

- **Bevor der Videorecorder auf Timer-Bereitschaft schaltet (🕒 -Anzeige leuchtet nicht)**

1) Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. 23
2) Drücken Sie die **Zifferntaste 4**, um "PROGRAMM." zu wählen. 4

④



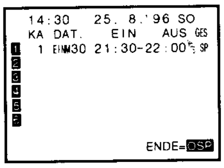
```
  14:30   25. 8.'96 SO
  KA DAT.    EIN    AUS GES
1  1 EINM30 21:30~22:00 SP
2
3
4
5
6
 WÄHLE=1-6
                   ENDE=OSP
```

Prüfen Sie die Programmdaten.

3) Drücken Sie die **OSP**-Taste zweimal zum Verlassen der Betriebsart. 23

- **Zum Bestätigen im Timer-Bereitschaftsbetrieb (🕒 -Anzeige leuchtet)**

Drücken Sie die **OSP**-Taste, so daß der Bestätigungsbildschirm erscheint. 23



```
  14:30   25. 8.'96 SO
  KA DAT.    EIN    AUS GES
1  1 EINM30 21:30-22:00 SP
2
3
4
5
6
                   ENDE=OSP
```

Nach ca. 30 Sekunden verschwindet der Bildschirm wieder.

Löschen der SHOWVIEW-Timerprogramme

1) Wenn die 🕒 Anzeige leuchtet, drücken Sie die beiden **TIMER**-Taste damit sie erlischt und schalten den Videorecorder mit der **ON/STANDBY**-Taste ein. 25 17
2) Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. 23
3) Drücken Sie die **Zifferntaste 4**, um "PROGRAMM" zu wählen. 4
4) Wählen Sie die zu löschende Programmnummer mit den **Zifferntasten.** 4
5) Drücken Sie die **CANCEL**-Taste. Die gewählten Programmdaten werden gelöscht. 24
6) Drücken Sie die **OSP**-Taste. 23

Aufnahme oder Wiedergabe im Timer-Bereitschaftsmodus

Drücken Sie die beiden **TIMER**-Tasten gleichzeitig, um den Timer-Bereitschaftsbetrieb aufzuheben, und drücken Sie die **ON/STANDBY**-Taste, um den Videorecorder einzuschalten. Der Videorecorder kann jetzt betrieben werden. 25 17

- Drücken Sie die beiden **TIMER**-Tasten erneut, um den Videorecorder nach der Bedienung auf Timer-Bereitschaft zurückzuschalten. 25

Automatische Geschwindigkeitseinstellung

Wenn Sie nicht sicher sind, ob das verwendete Band lang genug zur Zeituhraufnahme in SP-Bandgeschwindigkeit ist, können Sie die Aufnahmegeschwindigkeit auf "AUTO" stellen. Die Aufnahme beginnt dann in SP-Bandgeschwindigkeit, und der Videorecorder berechnet automatisch die nötige Aufnahmegeschwindigkeit, um das Programm vollständig aufzuzeichnen. Wenn die Bandlänge nicht ausreicht, schaltet der Videorecorder auf LP-Bandgeschwindigkeit um.

Hinweise

- Sicherstellten, daß entsprechend der Einstellung im EINSTELLEN-Bildschirm die richtige Bandlänge verwendet wird.
- Wenn die LP-Bandgeschwindigkeit gewählt wird und die Bandlänge trotzdem nicht zur vollständigen Aufnahme des Programms ausreicht, kann das Programm nicht vollständig aufgenommen werden.
- An der Stelle, wo der Videorecorder von SP- auf LP-Geschwindigkeit umschaltet, treten bei der Wiedergabe Verzerrungen auf.

Fehleranzeigen

Wenn die Meldung "VOLL (PRG. LÖSCHEN?)" bei der Programmierung im Bildschirm erscheint, können keine weiteren Programme eingegeben werden. Wenn Sie ein weiteres Programm hinzufügen wollen, wählen Sie ein vorhandenes Programm auf dem Bildschirm mit Hilfe der Zifferntasten und drücken die CANCEL-Taste zum Löschen.

Wenn eine unmögliche SHOWVIEW-Nummer eingegeben wird, blinkt die Meldung "FALSCHES CODE EINGEGEBEN" im Bildschirm, um anzuzeigen, daß die Aufnahme nicht durchgeführt werden kann. Drücken Sie die CANCEL-Taste, um die SHOWVIEW-Nummer zu löschen und die richtige Nummer einzugeben.

Wenn die Meldung "ÜBER" bei der Programmierung im Bildschirm erscheint, heißt das, daß Sie zwei Programme mit der gleichen Startzeit eingegeben haben. Sie müssen eine Korrektur vornehmen. Auf diesem Bildschirm wird die später vorgenommene Eingabe blinkend dargestellt.

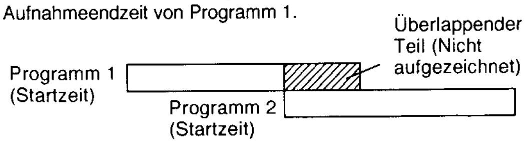
1) Geben Sie die zu korregieren gewünschte Programmnummer mit den Zifferntasten ein. 4
2) Korregieren Sie die Timerprogrammdaten oder löschen Sie die Daten durch Drücken der CANCEL-Taste, und drücken Sie dann die SHOWVIEW-Taste, um die SHOWVIEW-Nummer einzugeben. 24 5

Bei Auftreten eines Stromausfalls während der Timeraufnahme

- Wenn die Anzeige 🕒 im Videorecorder-Display nach einem Stromausfall fehlt, sind die Programminhalte gelöscht worden. Die Timerprogrammierung muß wiederholt werden.
- Nach einem Stromausfall von kurzer Dauer blinkt im Videorecorder-Display der Doppelpunkt zwischen der Stunden- und Minutenanzeige. Dies bedeutet, daß die im Speicher des Videorecorders abgelegten Timerprogramme noch vorhanden sind.

Überlappen von Programmen

Wenn sich zwei Programme überlappen, hat die Aufnahmestartzeit von Programm 2 Priorität gegenüber der Aufnahmeendzeit von Programm 1.



4 7

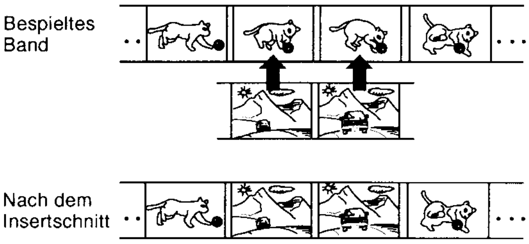
AUFNAHME

SCHNEIDEN

Sie können Ihre eigenen originellen Videoaufnahmen schneiden, indem Sie z.B. verschiedene Szenen einfügen und Tonmaterial einblenden.

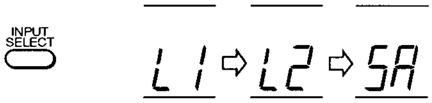
Video-Insertschnitt

Sie können leicht eine Szene auf einem bespielten Band mit Bild und Ton von einem angeschlossenen Gerät austauschen.


Bespieltes Band
Nach dem Insertschnitt

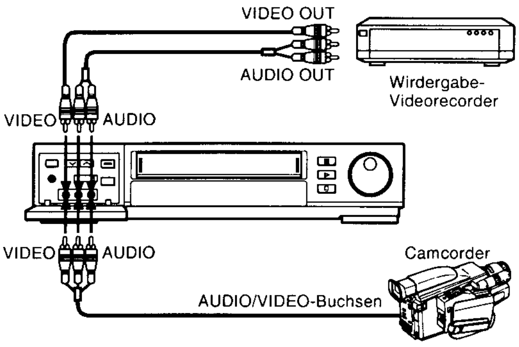
Vorbereitung

- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen sie den VTR/TV-Wahlschalter auf "VTR". **1**
- Wählen Sie den Zeilen-Eingangsmodus durch Drücken der INPUT SELECT-Taste entsprechend der Verbindung. **3**


INPUT SELECT
L1 ⇨ L2 ⇨ SA

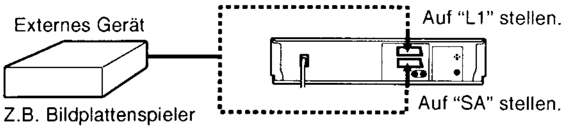
■ **Anschluß an einen anderen Videorecorder oder externe Geräte über die Buchsen LINE IN 2 AUDIO/VIDEO (Cinchtyp)**

Auf "L2" stellen.


VIDEO OUT
AUDIO OUT
Wirdergabe-Videorecorder
VIDEO
AUDIO
VIDEO
AUDIO
Camcorder
AUDIO/VIDEO-Buchsen

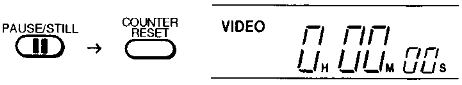
■ **Anschluß an externe Geräte über die Buchsen IN 1/OUT (SCART) oder SAT./DECODER.**

Auf "L1" oder "SA" stellen.

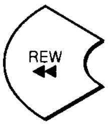

Externes Gerät
Auf "L1" stellen.
Z.B. Bildplattenspieler
Auf "SA" stellen.

1. Suchen Sie das Ende der auszutauschenden Szene mit der **PLAY**-Taste auf. **27**

2. An der Endstelle stellen Sie mit der **PAUSE/STILL**-Taste auf Pause und drücken die **COUNTER RESET**-Taste, um das Zählwerk auf "0H00M00S" zu stellen. **26** **18**


PAUSE/STILL
COUNTER RESET
VIDEO
0H00M00S

3. Spulen Sie das Band durch Drücken der **REW**-Taste zum Anfangspunkt der auszutauschenden Szene zurück. **9**



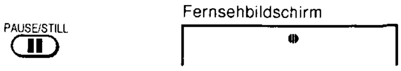
4. Am Anfangspunkt spielen Sie das Band ab und drücken die **PAUSE/STILL**-Taste, um auf Wiedergabepause zu schalten. **26**

PAUSE/STILL

5. Drücken Sie die **VIDEO INSERT**-Taste. **14**

VIDEO INSERT

6. Drücken Sie die **PAUSE/STILL**-Taste, um den Insertschnitt zu beginnen, und starten Sie dann die Wiedergabe am externen Gerät. **26**
   Die Aufnahme stoppt automatisch, wenn das Zählwerk "0H00M00S" erreicht.


PAUSE/STILL
Fernsehbildschirm

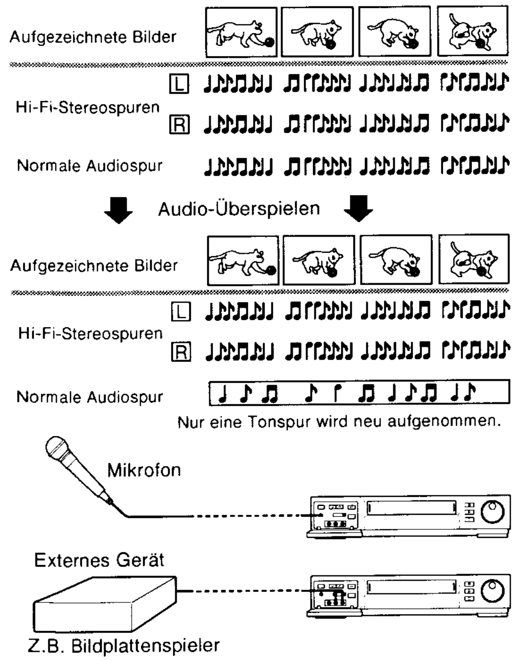
Wenn die DISPLAY-Taste gedrückt wird.

Hinweise

- Farbrauschen wird auch dann erzeugt, wenn die Abschnitte abgespielt werden, wo der Insertschnitt beginnt und endet.
- Farbrauschen kann erzeugt werden, wenn der Abschnitt abgespielt wird, der über Videoinsert importiert wurde.

Audio-Überspielen

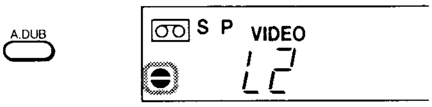
Audio-Überspielen erlaubt es, den Ton von einem Mikrofon oder von an die LINE IN 2-Buchse angeschlossenen externen Geräten auf die normale Audiospur einzublenden, ohne daß dabei Bilder oder der Ton auf der Hi-Fi-Stereospur beeinträchtigt werden. Sie können z.B. eine Camcorder-Aufnahme nachträglich mit Ihren eigenen Kommentaren versehen.


Aufgezeichnete Bilder
L
Hi-Fi-Stereospuren
R
Normale Audiospur
Audio-Überspielen
Aufgezeichnete Bilder
L
Hi-Fi-Stereospuren
R
Normale Audiospur
Nur eine Tonspur wird neu aufgenommen.
Mikrofon
Externes Gerät
Z.B. Bildplattenspieler

Vorbereitung

- Stellen Sie das Mikrofon in die MIC-Bushse am Videorecorder ein, um Töne von einem Mikrofon aufzenehmen. **H**
- Um Töne von externen Geräten aufzunehmen, schließen Sie diese an die Buchsen LINE IN 2 (AUDIO) an und drücken die INPUT SELECT-Taste, so daß "L2" im Videorecorder-Display erscheint. (Ziehen Sie in diesem Fall das Mikrofon nach dem Gebrauch heraus.) **J** **3**

1. Legen Sie die Cassette ein, auf der die Tonspur überspielt werden soll. **E**
2. Drücken Sie die **PLAY**-Taste zum Starten der Wiedergabe. **27**
3. Drücken Sie die **PAUSE/STILL**-Taste, an der Stelle wo Überspielvorgang beginnen soll. **26**
4. Drücken Sie die **A.DUB**-Taste. **10**


A.DUB
S P
VIDEO
L2

Auf dem Bildschirm kann Bildflackern auftreten. Dies ist keine Fehlfunktion.

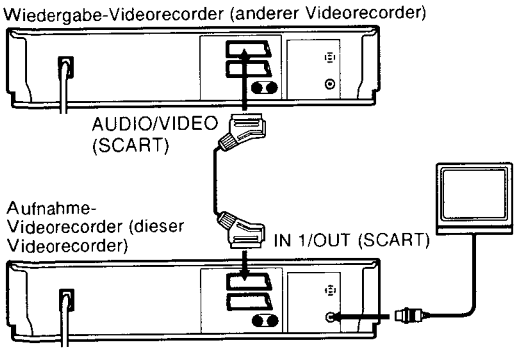
5. Drücken Sie die **PAUSE/STILL**-Taste, um den Audio-Überspielvorgang zu starten. Spielen Sie den Ton eines angeschlossenen Gerätes ab. **26**

Hinweise

- Ziehen Sie das Mikrofon nach dem Gebrauch heraus.
- Zum Mithören des aufgenommenen Tons drücken Sie die A.SELECT-Taste, um den Tonausgang zu wählen. **13**

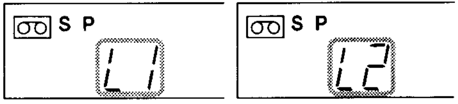
Bandkopieren

Mit einem zweiten Videorecorder oder einem anderen externen Gerät können Bänder kopiert werden.


Wiedergabe-Videorecorder (anderer Videorecorder)
AUDIO/VIDEO (SCART)
Aufnahme-Videorecorder (dieser Videorecorder)
IN 1/OUT (SCART)

Wichtig
Fernsehprogramme dürfen nur unter der Auflage aufgenommen werden, daß keine Urheberrechte verletzt werden.

1. Drücken Sie die **INPUT SELECT**-Taste, so daß die Anzeige "L1" oder "L2" je nach Anschlußart im Videorecorder-Display erscheint. **3**


Bei Einsatz der IN 1/OUT (SCART)-Buchse
Bei Einsatz der LINE IN 2-Cinchbuchsen (Vorderseite)

2. Wählen Sie durch Drücken der **SP/LP**-Taste die Bandgeschwindigkeit. **12**
3. Spielen Sie das Band auf einem Videorecorder ab, und drücken Sie die beiden **REC**-Tasten gleichzeitig zum Start der Aufnahme an Ihrem Videorecorder. **7** **A**
4. Drücken Sie nach beendeter Aufnahme die **STOP**-Taste an beiden Geräten. **29** **N**

Hinweise

- Die Bildqualität einer Bandkopie ist gegenüber dem Original etwas vermindert.
- Drücken Sie bei der Überwachung einer Aufnahme die TV/VIDEO-Taste zum Abrufen der Anzeige "VIDEO" im Videorecorder-Display, oder stellen Sie den Videokanal am Fernseher ein. **2**

ANFANGSEINSTELLUNGEN MIT BILDSCHIRMANZEIGE

Die erforderlichen Einstellungen können leicht mit Hilfe der Bildschirmanzeige vorgenommen werden.

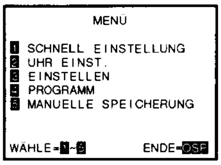
MENÜ/EINSTELLEN-Bildschirm

Vorbereitung

- Schalten Sie den Fernseher ein, und wählen Sie den Videoeingangsmodus oder den Videokanal, wenn der Antennenanschluß hergestellt ist.
- Stellen Sie den VTR/TV-Wahlschalter auf “VTR”. **1**

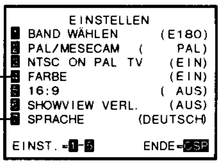
1 Drücken Sie die **ON/STANDBY**-Taste, um den Videorecorder einzuschalten. **17** **D**

2 Drücken Sie die **OSP**-Taste. **23**
Der MENÜ-Bildschirm erscheint.
Einzelheiten zu jedem Menüpunkt siehe folgende Seiten.



MENÜ
1 SCHNELL EINSTELLUNG
2 UHR EINST.
3 EINSTELLEN
4 PROGRAMM
5 MANUELLE SPEICHERUNG
WÄHLE=1~5 ENDE=OSP

3 Drücken Sie die **Zifferntaste 3.** **4**
Der EINSTELLEN-Bildschirm erscheint auf dem Fernseher.
Einzelheiten zu jedem Menüpunkt siehe folgende Seiten.



EINSTELLEN
1 BAND WÄHLEN (E180)
2 PAL/MESECAM (PAL)
3 NTSC ON PAL TV (EIN)
4 FARBE (EIN)
5 16:9 (AUS)
6 SHOWVIEW VERL. (AUS)
7 SPRACHE (DEUTSCH)
EINST.=1-5 ENDE=OSP

Drücken Sie die **Zifferntaste 7**, um die Sprache umzustellen. **4**

Drücken Sie die **Zifferntaste 4**, um “AUS” zu wählen, wenn das Fernsehprogramm oder Videomaterial in schwarzweiß ist. **4**

4 Drücken Sie die **OSP**-Taste, um wieder auf das normale Fernsehbild zurückzuschalten. **23**

Schnell Einstellung

Folgen Sie diesem Verfahren, wenn “AUTOMATISCHE EINRICHTUNG” nicht richtig arbeitet oder wenn Sie die Senderpositionen ändern wollen. Die Sendereingabe kann auch manuell vorgenommen werden, ebenso wie die Uhreinstellung.

Vorbereitung

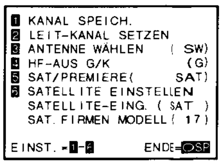
- Schalten Sie den Fernseher ein, und wählen Sie den Videoeingangsmodus oder den Videokanal, wenn der Antennenanschluß hergestellt ist.
- Stellen Sie den VTR/TV-Wahlschalter auf “VTR”. **1**
- Wenn Sie einen Sat-Empfänger oder einen PREMIERE-Decoder mit diesem Videorecorder verwenden, stellen Sie die Verbindung korrekt her und schalten Sie das Gerät ein. Verfahren Sie wie folgt.

1) Drücken Sie die **OSP**-Taste. **23**
Der MENÜ-Bildschirm erscheint.

2) Drücken Sie die **Zifferntaste 5**, um “MANUELLE SPEICHERUNG” zu wählen. **4**

3) Stellen Sie “SAT/PREMIERE” auf “SAT” oder “PREMIERE” indem Sie die **Zifferntaste 5** drücken. **4**

⑤



1 KANAL SPEICH.
2 LEIT-KANAL SETZEN
3 ANTENNE WÄHLEN (SW)
4 HF-AUS G/K (G)
5 SAT/PREMIERE(SAT)
6 SATELLITE EINSTELLEN
SATELLITE-EING. (SAT)
SAT. FIRMEN MODELL (17)
EINST.=1-6 ENDE=OSP

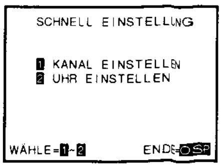
SAT: Zur Verwendung eines Sat-Empfängers, angeschlossen an diesen Videorecorder.
PREMIERE: Zur Verwendung eines PREMIERE-Decoders, angeschlossen an diesen Videorecorder.

4) Drücken Sie die **OSP**-Taste zweimal, um zum normalen Fernsehbild zurückzuschalten. **23**

1 Drücken Sie die **OSP**-Taste. **23**
Der MENÜ-Bildschirm erscheint.

2 Drücken Sie die **Zifferntaste 1**, um “SCHNELL EINSTELLUNG” zu wählen. **4**

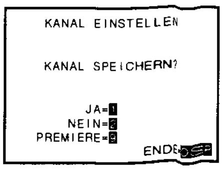
①



SCHNELL EINSTELLUNG
1 KANAL EINSTELLEN
2 UHR EINSTELLEN
WÄHLE=1~2 ENDE=OSP

3 Drücken Sie die **Zifferntaste 1**, um “KANAL EINSTELLEN” zu wählen. **4**
Der Videorecorder beginnt mit der Suche nach Fernsehsendern. Wenn ein Sender gefunden ist, wird die unten gezeigte Meldung eingeblendet.

①



KANAL EINSTELLEN
KANAL SPEICHERN?
JA=1
NEIN=2
PREMIERE=9
ENDE=OSP

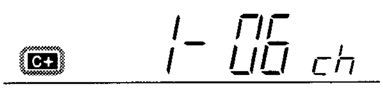
4 Drücken Sie die **Zifferntasten**, um zu wählen, ob der momentan empfangene Sender im Speicher des Videorecorder abgelegt werden soll oder nicht. **4**

① : Wenn der momentane Sender gespeichert werden soll.

② : Wenn er nicht gespeichert werden soll. Der Videorecorder sucht den nächsten Sender auf und blendet die Meldung erneut ein.

⑨ : Wenn bei der Suche ein PREMIERE-Kanal gefunden wird. Die Anzeige C+ leuchtet im Display des Videorecorders auf.

Beispiel



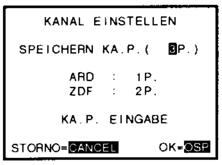
Hinweise
- Wenn im Fernseherbildschirm kein klares Bild erscheint nachdem die Suche beendet ist, nehmen Sie die Feineinstellung mit den INDEX-Tasten vor. **6**
- Wenn Sie "SAT" in Schritt **3)** auf wählen, können Sie keinen PREMIERE-Kanal einstellen.

5 Drücken Sie die **Zifferntasten**, um eine Positionsnummer (1–99) zur Speicherung des Senders. **4**

Die Positionsnummer 1 wird für ARD und 2 für ZDF verwendet.

Beispiel

⓪→③



KANAL EINSTELLEN

SPEICHERN KA.P.(3P.)

ARD : 1P.
ZDF : 2P.

KA.P. EINGABE

STORNO=CANCEL OK=OSP

- Zum Löschen der Positionsnummer drücken Sie die **CANCEL**-Taste. **24**

Notieren Sie alle Positionsnummern, die im Videorecorder gespeichert sind, in der Tabelle (LEIT-KANAL-Tabelle), damit Sie die SHOWVIEW-Aufnahmefunktion einsetzen können.

6 Drücken Sie die **OSP**-Taste. Der Videorecorder sucht den nächsten Sender auf. Folgen Sie Schritt *4* und *5*. **23**

Hinweise
- Die Schnell-Eingabe arbeitet nicht bei SECAM D/K Sendern (Sender in Rußland, Tschechien, Slovakei, Ungarn etc.). Verwenden Sie das manuelle Verfahren zur Sender- und Uhrzeiteingabe.
- Wenn auch nach diesem Verfahren die Uhrzeit noch nicht korrekt ist, führen Sie "Einstellung der Uhr" auf dieser Seite aus.

Einstellung der Uhr

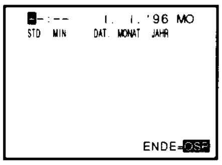
Die einzustellende Zeiteinheit blinkt. Geben Sie die Zeitdaten der jeweils blinkenden Einheit folgend über die Zifferntasten ein. Durch Drücken der SHIFT-Tasten (→/←) blinkt die gewünschte Zeiteinheit. **22**

Beispiel **Einstellung der Uhrzeit auf 14:30 am 25. August 1996.**

1 Drücken Sie die **OSP**-Taste. Der MENÜ-Bildschirm erscheint auf dem Fernseher. **23**

2 Drücken Sie die **Zifferntaste 2**, um "UHR EINST." zu wählen. **4**

②

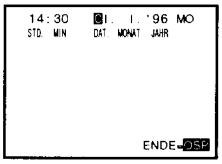


-- : --   1. 1. '96 MO
STD MIN DAT. MONAT JAHR

ENDE=OSP

3 Stellen Sie die Stunden- und Minutenzahl ein (im 24-Stunden-Format). **4**

①→④→③→⓪

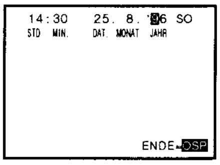


14:30   1. 1. '96 MO
STD MIN DAT. MONAT JAHR

ENDE=OSP

4 Stellen Sie den Tag und Monat ein. **4**

②→⑤→⓪→⑧

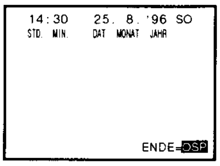


14:30   25. 8. '96 SO
STD MIN. DAT. MONAT JAHR

ENDE=OSP

5 Stellen Sie das Jahr ein (nur die letzten beiden Ziffern der Jahreszahl). **4**

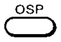
⑨→⑥

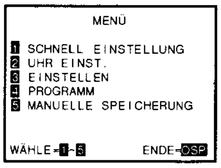


14:30   25. 8. '96 SO
STD MIN. DAT. MONAT JAHR

ENDE=OSP

6 Drücken Sie die **OSP**-Taste. Die Uhr läuft jetzt. **23**





MENÜ

1 SCHNELL EINSTELLUNG
2 UHR EINST.
3 EINSTELLEN
4 PROGRAMM
5 MANUELLE SPEICHERUNG

WÄHLE=1~5 ENDE=OSP

7 Drücken Sie die **OSP**-Taste erneut, um den Einstellmodus zu verlassen. **23**

RÜcKSTELLEN HOCH

5 2 ZUWEISUNG DER FERNSEHKANÄLE AM VIDEORECORDER

Zum Empfangen und Aufnehmen von Fernsehprogrammen müssen die Fernsehsender zuerst im Speicher des Videorecorders eingegeben werden. Der Videorecorder hat 99 Speicherplätze für verschiedene Fernsehsender.

Speicherverfahren

Information

Zum Empfang von Fernsehprogrammen mit diesem Videorecorder muß die Empfangsbereich-Nummer richtig entsprechend dem in ihrem Wohngebiet verwendeten Fernsehsystem eingestellt werden. Die in Klammern gezeigten Fernsehkanalnummern werden im Display des Videorecorders gezeigt.

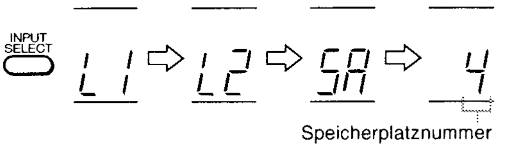
Fernsehsystem	Einstellbereichs-Nummer	Frequenz-band	Empfangskanal-nummer
PAL B/G (Deutschland, Italien, Schweiz etc.) SECAM B/G (Länder des mittleren und nahen Ostens)	1	VHF	E2 – E12 (2 – 12) A – H, H1, H2 (13 – 20, 11, 12) R1 – R12 (81 – 92)
		UHF	E21 – E69 (21 – 69)
		CATV	X, Y, Z (71, 72, 73)
	2	CATV	S1 – S41 (1 – 41)
SECAM D/K (Russische Republik, Tschechische Republik, Slovakische Republik, Ungarn, etc.)	3	VHF	R1 – R12 (1 – 12) A – H, H1, H2 (13 – 20, 11, 12) E2 – E12 (82 – 92)
		UHF	E21 – E69 (21 – 69)
		CATV	X, Y, Z (71, 72, 73)
	4	CATV	S1 – S41 (1 – 41)

Vorbereitung

- Wählen Sie den Videokanal am Fernseher, oder stellen Sie den Eingangswahlschalter des Fernsehers auf Videoeingang.
- Stellen Sie den VTR/TV-Wahlschalter auf "VTR". **1**
- Schalten sie den Videorecorder ein.
- Wenn Sie einen Sat-Empfänger oder einen PREMIERE-Decoder verwenden, nehmen Sie den Anschluß richtig vor und schalten Sie das Gerät ein.

Wichtig

Dieses Verfahren kann nur ausgeführt werden, **3** wenn im Videorecorder-Display eine Speicherplatznummer angezeigt wird.
Wenn die Anzeige "L1", "L2" oder "SA" erscheint, drücken Sie die INPUT SELECT-Taste, so daß die Speicherplatznummer erscheint.



Speicherplatznummer

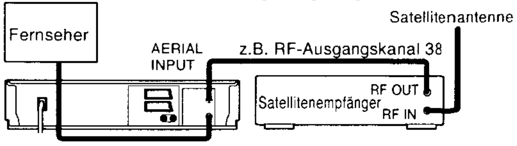
Beispiel

Speichern von ARD auf Kanal 26 eines PAL B/G-Fernsehers unter Speicherplatznummer 1 an Ihrem Videorecorder.

Die Zuordnung der Sender im Speicher des Videorecorders ist im allgemeinen wie folgt, für SHOWVIEW-Aufnahme.

Beispiel

ARD:	Speicherplatz 1
ZDF:	Speicherplatz 2
WEST 3:	Speicherplatz 3
RTL:	Speicherplatz 4
Satellit:	Speicherplatz 6, im Beispiel (bei Anschluß an eine HF-Leitung wie gezeigt)



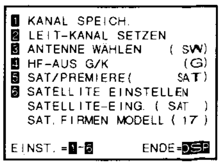
In diesem Fall wählen Sie den Speicherplatz 6 in Schritt *5* und Kanal 38 in Schritt *7*, wenn der Ausgangskanal des Sat-Empfängers z.B. 38 ist. Stellen Sie sicher, daß der Fernseher ein Satellitenprogramm empfängt. Beim Betrachten oder Aufzeichnen eines Satellitenprogramms wählen Sie die Speicherplatznummer 6.

1 Drücken Sie die **OSP**-Taste, so daß der MENÜ-Bildschirm im Fernseher erscheint. **23**

2 Drücken Sie die **Zifferntaste 5**, um "MANUELL SPEICHRUNG" zu wählen. **4**

3 Stellen Sie durch Drücken der **Zifferntaste 5** "SAT/PREMIERE" auf "SAT" oder "PREMIERE" ein. **4**
Überspringen Sie diesen Schritt, wenn weder ein Sat-Empfänger noch ein PREMIERE-Decoder angeschlossen ist.

⑤



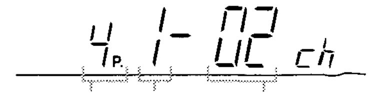
```
1 KANAL SPEICH.
2 LEIT-KANAL SETZEN
3 ANTENNE WÄHLEN      ( SW)
4 HF-AUS G/K           (G)
5 SAT/PREMIERE(       SAT)
6 SATELLITE EINSTELLEN
  SATELLITE-EING. ( SAT  )
  SAT. FIRMEN MODELL ( 17 )

EINST. =1-6        ENDE=OSP
```

SAT:	Zum Einsatz eines an diesen Videorecorder angeschlossen Satellitenempfängers.
PREMIERE:	Zum Einsatz eines an diesen Videorecorder angeschlossen PREMIERE-Decoders.

4 Drücken Sie die **Zifferntaste 1**, um "KANAL SPEICH." zu wählen. **4**
Der Videorecorder schaltet auf Sender-Betriebsart um.
Der Videorecorder ist jetzt im Sendereinstellbetrieb, und die Bildschirmanzeige verschwindet.

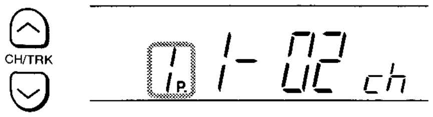
Videorecorder-Display Beispiel

①

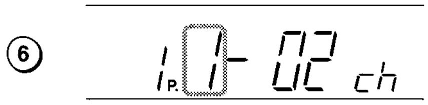


Speicherplatznummer Einstellbereichs-Nummer Empfangskanal-nummer

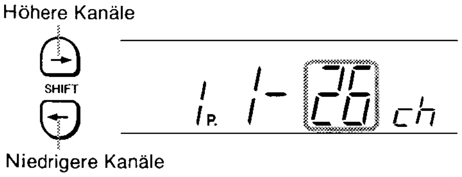
5 Drücken Sie die **CH/TRK**-Taste, um die Speicherplatznummer 1 für dieses Beispiel zu wählen. 20


CH/TRK
1 P.
1- 02
ch

6 Drücken Sie die **Zifferntaste 6**, um eine Einstellbereichsnummer 1 (PAL B/G) zu wählen. 4

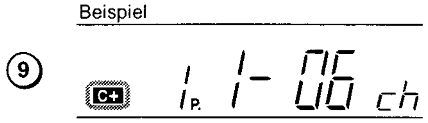


7 Halten Sie die **SHIFT**-Taste gedrückt, um den Suchlauf auf Kanal 26 zu beginnen. 22

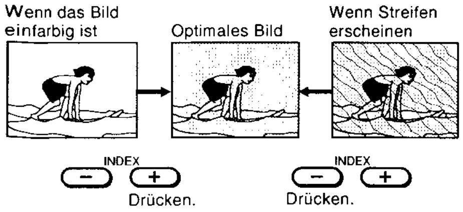

Höhere Kanäle
SHIFT
1 P.
1- 26
ch
Niedrigere Kanäle

Wenn das Fernsehsignal nicht ARD ist, drücken Sie die **SHIFT**-Taste erneut und halten sie gedrückt.

- **Speichern von PREMIERE-Kanälen**
  Wenn der PREMIERE-Kanal mit der Suchfunktion aufgefunden ist, drücken Sie die **Zifferntaste 9**.
  Die Anzeige C+ erscheint im Videorecorder-Display.


Beispiel
9
C+
1 P.
1- 06
ch

8 Wenn nach dem Suchlauf kein scharfes Bild auf dem Fernsehbildschirm erzielt wird, nehmen Sie eine Feineinstellung mit den **INDEX**-Tasten vor. 6

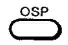

Wenn das Bild einfarbig ist
Optimales Bild
Wenn Streifen erscheinen
INDEX
–
+
Drücken.
INDEX
–
+
Drücken.

9 Wiederholen Sie Schritt *5* bis *8* für weitere Fernsehsender und für Satellitensender, wenn Ihr Sat-Empfänger nicht über ein SCART-Kabel angeschlossen ist.
Wählen Sie die Speicherplatznummern in Schritt *5* wie folgt.

ZDF	Speicherplatz 2
WEST 3	Speicherplatz 3
RTL	Speicherplatz 4
Satellite	Speicherplatz 6

Notieren Sie alle im Videorecorder gespeicheren Speicherplatznummern auf, So daß Sie zur SHOWVIEW-Aufnahme bereit sind.

10 Drücken Sie die **OSP**-Taste.
Die Kanaleingabe ist damit abgeschlossen. 23



Nach der Kanaleingabe rufen Sie die Fernsehsender einfach durch Eingabe der betreffenden Speicherplatznummern ab.

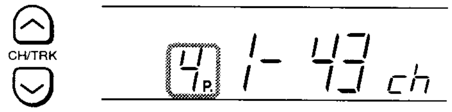
Überspringen von Kanälen

Nicht gewünschte Speicherplatznummern können umgangen werden.

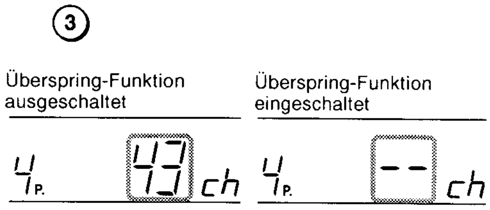
1) Stellen Sie den Videorecorder entsprechend Schritt *1* bis *4* im Sendereingabeverfahren auf Senderbetrieb ein.

2) Wählen Sie die zu überspringen gewünschte Speicherplatznummer mit der **CH/TRK**-Taste. 20

Beispiel **Zum Überspringen der Speicherplatznummer 4.**


CH/TRK
4 P.
1- 43
ch

3) Drücken Sie die **Zifferntaste 3**. 4
Die folgende Anzeige erscheint im Videorecorder-Display bei ein- und ausgeschalteter Überspring-Funktion.


3
Überspring-Funktion ausgeschaltet
Überspring-Funktion eingeschaltet
4 P.
43 ch
4 P.
-- ch

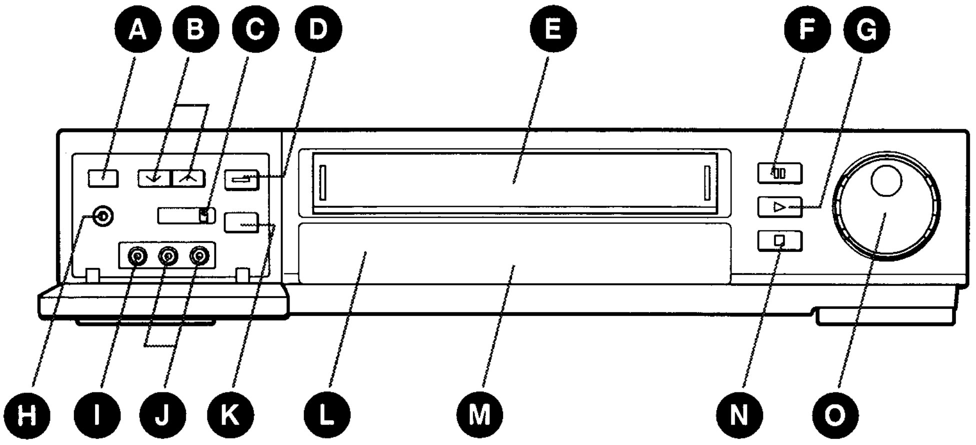
Wenn Sie die **Zifferntaste 3** erneut drücken, erscheint die Fernsehkanalnummer, und die Überspring-Funktion wird wieder aufgehoben. 4

4) Drücken Sie die **OSP**-Taste zum Verlassen dieses Modus. 23

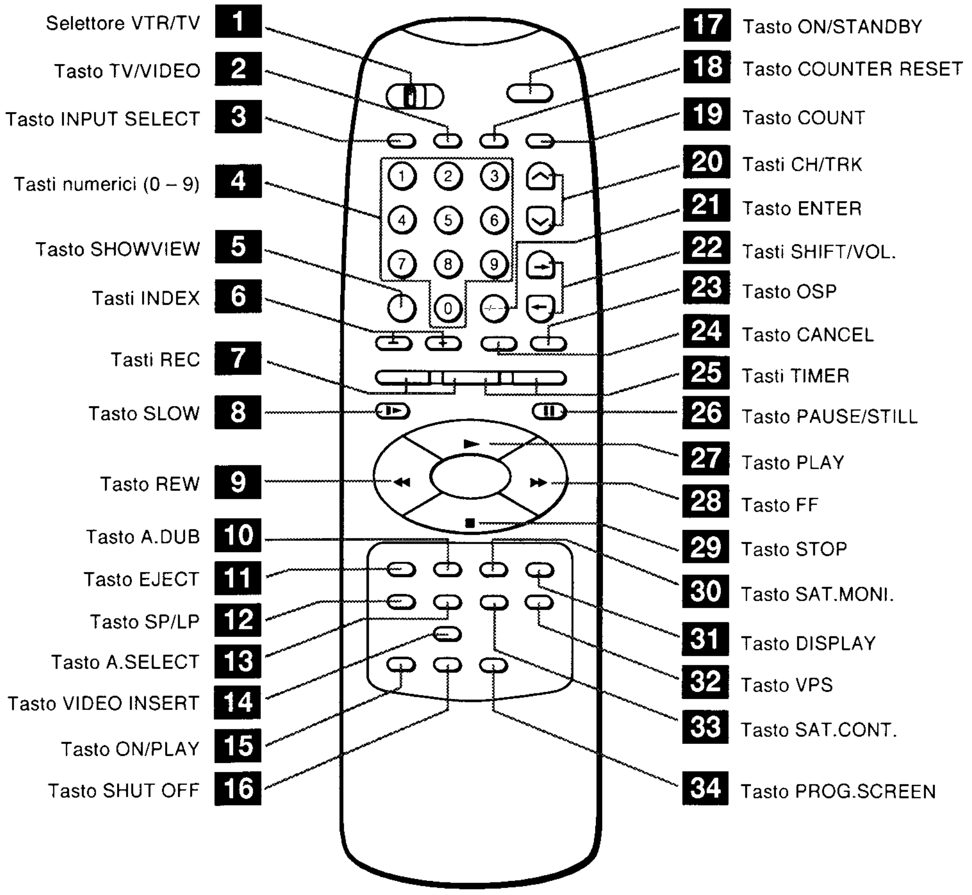
Zum Löschen des Kanalüberspringens.
Folgen Sie Schritt **1)** bis **4)** oben.

IDENTIFICAZIONE DEI COMANDI

Pannello anteriore


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

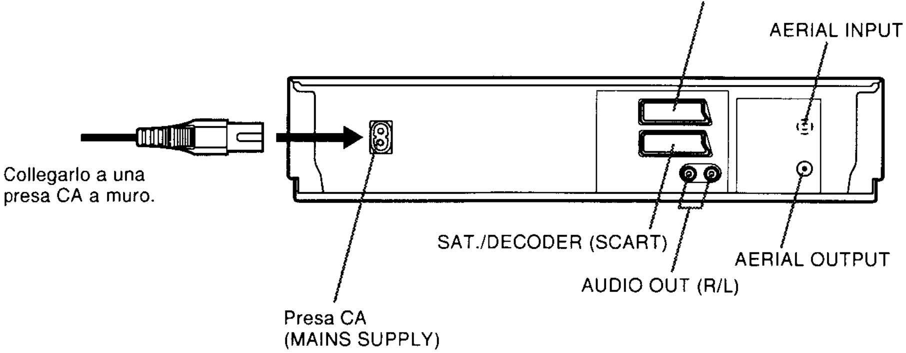
Telecomando


Selettore VTR/TV 1
Tasto TV/VIDEO 2
Tasto INPUT SELECT 3
Tasti numerici (0 – 9) 4
Tasto SHOWVIEW 5
Tasti INDEX 6
Tasti REC 7
Tasto SLOW 8
Tasto REW 9
Tasto A.DUB 10
Tasto EJECT 11
Tasto SP/LP 12
Tasto A.SELECT 13
Tasto VIDEO INSERT 14
Tasto ON/PLAY 15
Tasto SHUT OFF 16
17 Tasto ON/STANDBY
18 Tasto COUNTER RESET
19 Tasto COUNT
20 Tasti CH/TRK
21 Tasto ENTER
22 Tasti SHIFT/VOL.
23 Tasto OSP
24 Tasto CANCEL
25 Tasti TIMER
26 Tasto PAUSE/STILL
27 Tasto PLAY
28 Tasto FF
29 Tasto STOP
30 Tasto SAT.MONI.
31 Tasto DISPLAY
32 Tasto VPS
33 Tasto SAT.CONT.
34 Tasto PROG.SCREEN
1
2
3
4
5
6
7
8
9
0

Ⓐ Tasto REC
Ⓑ Tasti CHANNEL
Ⓒ Interruttore DNR
Ⓓ Tasto ON/STANDBY
Ⓔ Comparto cassetta
Ⓕ Tasto PAUSE/STILL
Ⓖ Tasto PLAY
Ⓗ Presa MIC
Ⓘ Presa LINE IN 2 VIDEO
Ⓙ Prese LINE IN 2 AUDIO L/R
Ⓚ Tasto EJECT
Ⓛ Sensore di comandi a distanza
Ⓜ Display del videoregistratore
Ⓝ Tasto STOP
Ⓞ Manopola JOG/Anello SHUTTLE

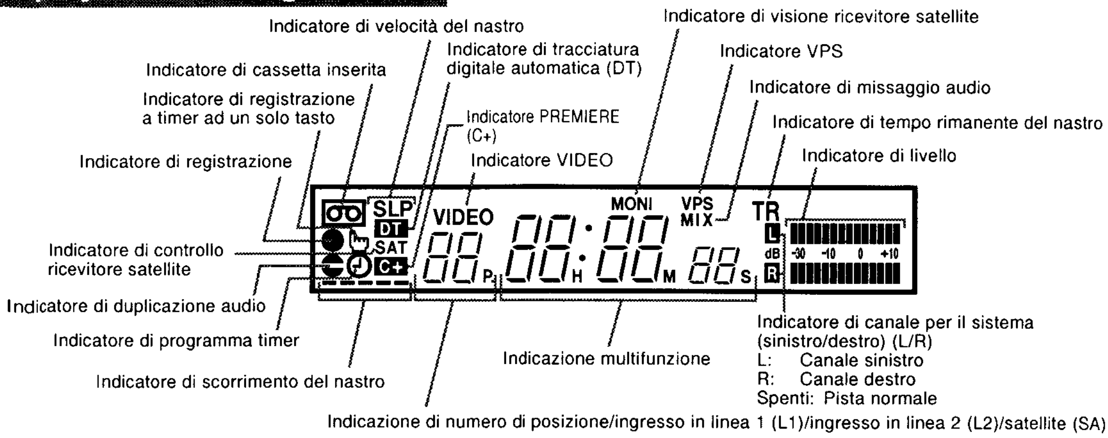
Prese LINE IN 2 (sul davanti)
Se l'apparecchio collegato è monoaurale (è dotato di una sola prese di uscita audio), collegare il lasto L (MONO); lo stesso suono viene registrato su entrambi i canali L e R della pista Hi-Fi.

Pannello posteriore


IN 1/OUT (SCART)
AERIAL INPUT
Collegarlo a una presa CA a muro.
SAT./DECODER (SCART)
AERIAL OUTPUT
AUDIO OUT (R/L)
Presa CA
(MAINS SUPPLY)

Collegare il cavo di alimentazione in dotazione alla presa CA.

Display del videoregistratore


Indicatore di velocità del nastro
Indicatore di visione ricevitore satellite
Indicatore di cassetta inserita
Indicatore di tracciatura digitale automatica (DT)
Indicatore VPS
Indicatore di missaggio audio
Indicatore di registrazione a timer ad un solo tasto
Indicatore PREMIERE (C+)
Indicatore di tempo rimanente del nastro
Indicatore di registrazione
Indicatore VIDEO
Indicatore di livello
SLP
DT
SAT
C+
VIDEO
MONI
VPS
MIX
TR
L
R
dB -30 -10 0 +10
P
H
M
S
Indicatore di controllo ricevitore satellite
Indicatore di duplicazione audio
Indicatore di programma timer
Indicatore di scorrimento del nastro
Indicazione multifunzione
Indicatore di canale per il sistema (sinistro/destro) (L/R)
L: Canale sinistro
R: Canale destro
Spenti: Pista normale
Indicazione di numero di posizione/ingresso in linea 1 (L1)/ingresso in linea 2 (L2)/satellite (SA)

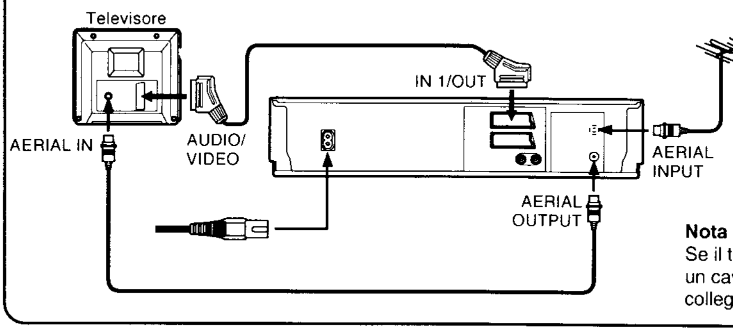
IMPOSTAZIONE AUTOMATICA

La funzione di impostazione automatica sintonizza automaticamente le stazioni TV e regola l'orologio. Basta collegare il videoregistratore al televisore e collegare il cavo di alimentazione ad una presa di corrente.

Impostazione automatica

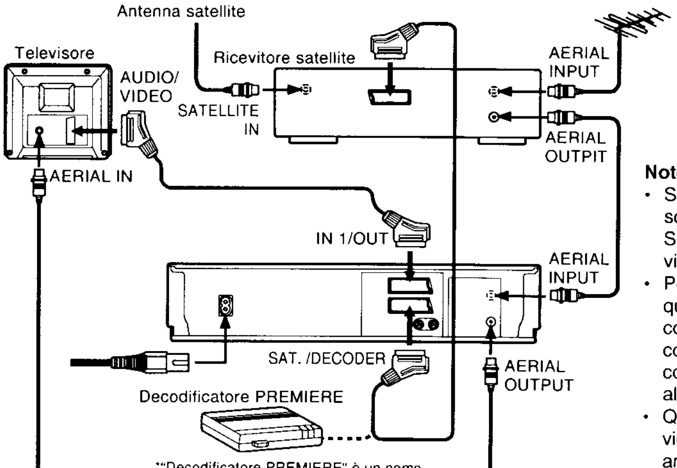
1 Collegare il videoregistratore al televisore con il cavo antenna dall'antenna principale.

Per ricevere solo stazioni TV


Televisore
IN 1/OUT
AERIAL IN
AUDIO/
VIDEO
AERIAL
INPUT
AERIAL
OUTPUT

Nota
Se il televisore è dotato di presa SCART, usare un cavo SCART (non in dotazione) per collegare il videoregistratore.

Per ricevere anche canali satellite

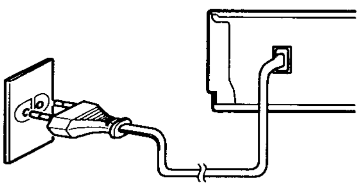

Antenna satellite
Televisore
Ricevitore satellite
AUDIO/
VIDEO
SATELLITE
IN
AERIAL
INPUT
AERIAL
OUTPIT
AERIAL IN
IN 1/OUT
AERIAL
INPUT
SAT. /DECODER
AERIAL
OUTPUT
Decodificatore PREMIERE

*"Decodificatore PREMIERE" è un nome usato soprattutto in Germania.

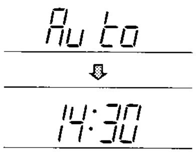
Note
- Se sia il televisore che il ricevitore satellite sono dotati di prese SCART, usare un cavo SCART (non in dotazione) per collegare il videoregistratore.
- Per usare un decodificatore PREMIERE con questo videoregistratore, usare un cavo di collegamento RGB tipo SCART (tipo a collegamento completo), reperibile in commercio) per collegare il videoregistratore al televisore.
- Quando si collega il ricevitore satellite e il videoregistratore usando solo un cavo antenna, assegnare manualmente una posizione di canale del videoregistratore ai canali satellite.

Accendere il ricevitore satellite o il decodificatore PREMIERE.

2 Collegare il videoregistratore alla presa di corrente per avviare l'impostazione automatica.
"AUTO" lampeggia sul display per alcuni minuti.



Display del videoregistratore



Quando l'operazione è stata completata, il display visualizza l'orario, p.es. "14:30".

La funzione di impostazione automatica ha ora sintonizzato tutte le stazioni TV sul videoregistratore e ha regolato l'orario.
Ora si deve impostare il canale video sul televisore se si è eseguito il collegamento senza cavo SCART.
Durante la memorizzazione di tutte le stazioni attive, il videoregistratore regola l'orologio.
Sono regolati tutti i dati tranne l'anno. Vedere "Regolazione dell'orologio" per come impostare l'anno.

PREPARATIVI

VISIONE DELL'IMMAGINE VIDEO

Il modo in cui si usa l'apparecchio per vedere un'immagine video varia a seconda che si sia usato un cavo SCART o meno.

Per chi usa un cavo SCART

■ **Per vedere un'immagine video dal videoregistratore**
Inserire una cassetta e premere il tasto **PLAY** sul telecomando o sul pannello anteriore del videoregistratore.

27 **G**

■ **Per vedere o registrare un programma dal ricevitore satellite collegato**
Premere il tasto **INPUT SELECT** in modo che l'indicatore "SA" appaia sul display del videoregistratore.

3

Per chi non usa un cavo SCART (Regolazione del canale video)

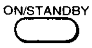
I segnali del videoregistratore sono inviati al televisore dalla presa AERIAL OUTPUT. È necessario selezionare sul televisore un canale da dedicare esclusivamente a questi segnali dal videoregistratore. Questo si chiama canale video.

1 Accendere il televisore.

2 Selezionare un canale libero sul televisore che si desidera usare per le immagini video, per esempio il canale 9.
Questo canale 9 sarà usato solo per vedere le immagini video.

3 Premere il tasto **ON/STANDBY** per accendere il videoregistratore.

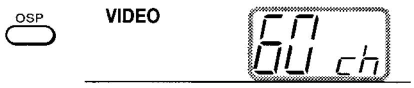
17 **D**



4 Tenere premuto il tasto **OSP per più di 5 secondi**.

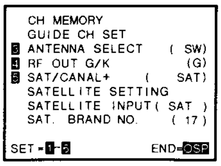
23

Display del videoregistratore



5 Sintonizzare il televisore (sul canale 9 ad esempio nel punto *2*) in modo che il seguente schermo appaia chiaramente. (Per la sintonizzazione del televisore fare riferimento al relativo manuale di istruzioni.)

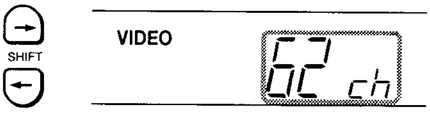
Schermo del televisore



```
  CH MEMORY
  GUIDE CH SET
3 ANTENNA SELECT   ( SW)
4 RF OUT G/K         (G)
5 SAT/CANAL+     (   SAT)
  SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.    ( 17 )

SET =1-5          END=OSP
```

6 Se dopo aver sintonizzato (al punto *5*) sono ancora presenti interferenze dovute a canali adiacenti, premere il tasto **SHIFT** per selezionare un altro canale video compreso tra i canali 53 e 67.

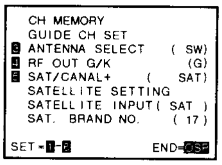
22



Risintonizzare il televisore vicino al canale UHF 62 (per esempio) e verificare che lo schermo appaia chiaramente.

7 Premere **il tasto numerico 4** per selezionare "G" o "K" sullo schermo a seconda del sistema televisivo del proprio paese.

4



```
  CH MEMORY
  GUIDE CH SET
3 ANTENNA SELECT   ( SW)
4 RF OUT G/K         (G)
5 SAT/CANAL+     (   SAT)
  SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.    ( 17 )

SET =1-5          END=OSP
```

G: Germania, Italia, Svizzera e i paesi del Medio e Vicino Oriente
K: Russia, Repubblica Ceca, Slovacchia, Ungheria, ecc.

Nota
Se la regolazione non viene eseguita correttamente non è possibile ottenere immagini o sonoro chiari.

8 Premere il tasto **OSP**.
La regolazione del canale video è completa.

23

Nota
Lo schermo TV mostrato qui è per il sistema PAL. Se il televisore collegato è del sistema SECAM o NTSC, non è possibile ottenere uno schermo chiaro.

Nota sull'uscita antenna

Sullo schermo al punto *5* l'uscita antenna può essere regolata su "SW" o "MIX".
(Applicabile quando il videoregistratore è collegato al televisore solo tramite la presa AERIAL OUTPUT.)
Premere **il tasto numerico 3** per regolare "ANTENNA SELECT" su "SW" o "MIX".

4

SW: È possibile vedere un'immagine video sul canale video solo quando l'indicatore VIDEO è stato visualizzato premendo il tasto TV/VIDEO.

MIX: È possibile vedere l'immagine video indipendentemente dal tasto TV/VIDEO.
Se l'immagine non è chiara selezionare "SW".

2

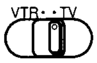
CONTROLLO A DISTANZA MULTIMARCA

Il telecomando può controllare televisori di varie marche se si seleziona il rispettivo codice di controllo. Il codice TOSHIBA è stato selezionato in fabbrica per il controllo di televisori TOSHIBA.

Regolazione del codice di marca

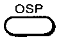
Preparativi

Regolare il selettore VTR/TV su "**TV**". **1**

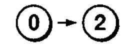


1 Tenendo premuto il tasto **OSP**, immettere le due cifre del codice di marca del televisore (vedere a destra) usando **i tasti numerici**. **23** **4**

Tenere premuto.



Esempio



2 Rilasciare il tasto **OSP**. **23**

3 Puntare il telecomando verso il televisore e usare ciascun tasto di quelli sotto indicati per assicurarsi che il televisore sia controllato correttamente.

ON/STANDBY	Per accendere e spegnere il televisore.	**17**
CH	Per selezionare il canale TV a salire o a scendere.	**20**
VOL.	Per regolare il livello del suono.	**22**
INPUT SELECT	Per selezionare una fonte esterna, come un videoregistratore.	**3**
Tasti numerici/ Tasto ENTER	Per selezionare i canali TV. Il modo di impiego può variare a seconda dei modelli di televisore. Controllare il modo di impiego per il televisore usato. Es. Selezione del canale TV 3: • 0→3 • 0→3→ENTER • ENTER→3 Selezione del canale TV 16: • 1→6 • 1→6→ENTER • ENTER→ENTER→1→6	**4** **21**

Importante

Alcuni televisori non rispondono a tutte le operazioni sopra o possono non funzionare assolutamente con questo telecomando. In questo caso, controllare il televisore con il suo telecomando.

Note

- Nel caso di alcune marche, sono disponibili vari codici di controllo (codici marca). Provarli uno alla volta fino a che i tasti possono controllare il televisore.
- Quando si sostituiscono le pile del telecomando, regolare di nuovo il codice di marca.

Tabella dei codici di marca

Marca del televisore	Codice di marca
TOSHIBA	01, 14, 15, 16, 17, 19
AKAI	08
BANG & OLUFSEN	20
BLAUPUNKT	04
BRANDT	11
BRIONVEGA	20
CGE	19
CONTINENTAL EDISON	22
FERGUSON	11, 24, 25
FINLUX	02, 15, 20
FISHER	08
FORMENTI	20
GOLDSTAR	02
GRUNDIG	04, 15, 19
HITACHI	06, 10, 11, 22
IMPERIAL	19
JVC	07
LOEWE	02
LOEWE OPTA	02, 20
METZ	20
MITSUBISHI	02, 09, 14
MIVAR	19
NOKIA	21
NORDMENDE	10, 11, 22
PANASONIC (NATIONAL)	03, 21, 26
PHILIPS	02, 18, 20
PHONOLA	02, 18, 20
PIONEER	11, 21
RADIOLA	02, 18
RADIOMARELLI	20
REX	21
SABA	10, 11, 20, 21, 22
SALORA	21
SAMSUNG	02
SANYO	08, 14
SCHNEIDER	02
SELECO	21
SHARP	05, 14
SIEMENS	04
SINGER	20
SINUDYNE	20
SONY	13, 14
TELEAVIA	11
TELEFUNKEN	11, 24
THOMSON	10, 11, 22
WEGA	20
YOKO	02

FUNZIONAMENTO TUTTO IN UNO / USO DELLE

Funzionamento TUTTO IN UNO

Questa funzione consente di eseguire gruppi di operazioni del videoregistratore e del televisore premendo semplicemente un tasto.

Preparativi
- Regolare il telecomando usando i codici di marca TV per controllare il televisore.
- Collocare il videoregistratore e il televisore il più vicino possibili in modo che entrambi possano ricevere i segnali ad infrarossi dal telecomando.
- Assicurarsi che una cassetta sia inserita nel videoregistratore.

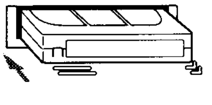
Alla pressione di un tasto, il videoregistratore e il televisore agiscono come segue.

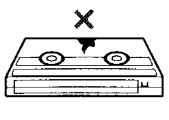
Tasto **ON/PLAY** ON/PLAY	Televisore:	Si accende. Se si è collegato il videoregistratore al televisore solo tramite cavo antenna, regolare il televisore sul canale video.	15
	Videoregistratore:	Si accende e inizia la riproduzione.	
Tasto **SHUT OFF** SHUT OFF	Televisore:	Si spegne.	16
	Videoregistratore:	Riavvolge il nastro fino all'inizio e quindi si spegne.	
Tasto **PROG.SCREEN** PROG.SCREEN	Televisore:	Si accende. Se si è collegato il videoregistratore al televisore solo tramite cavo antenna, regolare il televisore sul canale video.	34
	Videoregistratore:	Si accende e visualizza lo schermo per la programmazione SHOWVIEW.	

Note
- Questa funzione non è attivabile quando il videoregistratore è nel modo di attesa registrazione programma a timer.
- A seconda del tipo di televisore, questa funzione può non essere attivabile anche se il televisore è compatibile con questo videoregistratore.

Uso delle Videocassette

- **Inserimento della cassetta** E
  Spingere la cassetta nel comparto con il lato con la finestrella rivolto verso l'alto e il lato dell'etichetta rivolto in avanti. Il videoregistratore si accende automaticamente. L'indicatore ⌧ appare sul display del videoregistratore.





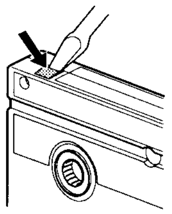
- **Estrazione della cassetta** K 11
  Premere il tasto **EJECT**. La cassetta viene espulsa dal comparto cassetta.

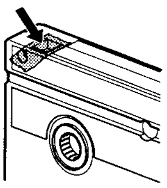
Attenzione
Non inserire le mani o oggetti estranei nel comparto. Questo può causare ferite o danni. Fare particolare attenzione nel caso di bambini per evitare incidenti.

Precauzioni per l'uso delle videocassette

Le videocassette sono dotate di una linguetta di sicurezza per evitare cancellazioni accidentali. Se la linguetta è stata rimossa la registrazione non può essere eseguita.

- **Per evitare cancellazioni accidentali**
  Rimuovere la linguetta di sicurezza con un cacciavite.
- **Per registrare di nuovo**
  Coprire il foro lasciato dalla linguetta con del nastro adesivo.





- Evitare di esporre le cassette alla luce solare diretta. Tenerle lontano da fonti di calore.
  Evitare umidità elevata, vibrazioni o scosse, forti campi magnetici (vicino a motori, trasformatori o magneti) e luoghi polverosi.

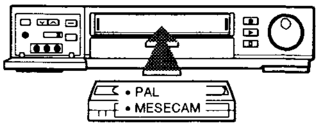
SELEZIONE DEL SISTEMA VIDEO

È necessario selezionare correttamente il sistema video per eseguire la registrazione o la riproduzione di nastri registrati.

Selezione del sistema video

Sistemi video compatibili con questo videoregistratore:

Nastri PAL:	Nastri registrati nel sistema PAL reperibili in commercio e nastri su cui sono state registrate trasmissioni PAL.
Nastri MESECAM:	Nastri su cui sono state registrate trasmissioni SECAM con un videoregistratore per il sistema MESECAM.



Preparativi

- Accendere il videoregistratore.
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su “VTR”.

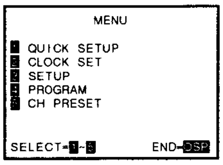
1

Per la riproduzione

Questo videoregistratore può riprodurre nastri registrati con il sistema video PAL, MESECAM o NTSC. Selezionare il sistema video in base al tipo di nastro da riprodurre. Per riprodurre un nastro registrato in NTSC, vedere “RIPRODUZIONE DI NASTRI REGISTRATI IN NTSC”.

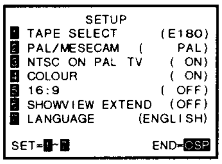
1 Premere il tasto **OSP**. **23**

OSP

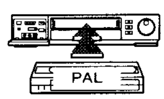
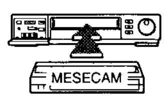

```
MENU
1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET

SELECT=1~5        END=OSP
```

2 Premere **il tasto numerico 3**. **4**

③


```
SETUP
1 TAPE SELECT        (E180)
2 PAL/MESECAM  (       PAL)
3 NTSC ON PAL TV     (  ON)
4 COLOUR             (  ON)
5 16:9               ( OFF)
6 SHOWVIEW EXTEND    (OFF)
7 LANGUAGE       (ENGLISH)

SET=1~7           END=OSP
```

3 Premere **il tasto numerico 2** per regolare come mostrato sotto. **4**

Sistema video di un nastro per la riproduzione		
Premere ripetutamente il tasto numerico 2 per regolare su:	“PAL”	“MESECAM”
Colore in uscita OUTPUT AERIAL IN 1/OUT	PAL	SECAM

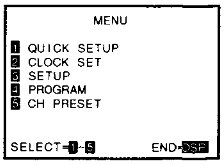
4 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Per la registrazione

Selezionare il sistema video in base alla fonte da registrare.

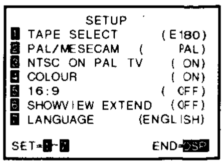
1 Premere il tasto **OSP**. **23**

OSP


```
MENU
1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET

SELECT=1~5        END=OSP
```

2 Premere **il tasto numerico 3**. **4**

③


```
SETUP
1 TAPE SELECT        (E180)
2 PAL/MESECAM  (       PAL)
3 NTSC ON PAL TV     (  ON)
4 COLOUR             (  ON)
5 16:9               ( OFF)
6 SHOWVIEW EXTEND    (OFF)
7 LANGUAGE       (ENGLISH)

SET=1~7           END=OSP
```

3 Premere **il tasto numerico 2** per regolare come mostrato sotto. **4**

Sistema televisivo INPUT AERIAL	PAL B/G (Germania, Italia, Svizzera, ecc.)	SECAM B/G (Paesi del medio e vicino oriente) SECAM D/K (Russia, Repubblica Ceca, Slovacchia, Ungheria, ecc.)
Sistema video in ingresso alle prese LINE IN IN VIDEO IN 1/OUT	PAL	SECAM
Premere ripetutamente il tasto numerico 2 per regolare su:	“PAL”	“MESECAM”
Sistema video registrato sul nastro		

4 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Le illustrazioni degli schermi di menu sono in inglese. È possibile cambiare la lingua dei menu tra tedesco e inglese premendo **il tasto numerico 7** mentre è visualizzato il menu SETUP al punto *2* sopra. **4**

RIPRODUZIONE

Questa sezione spiega le operazioni di riproduzione fondamentali.

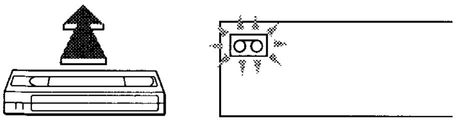
Riproduzione basilare

Preparativi

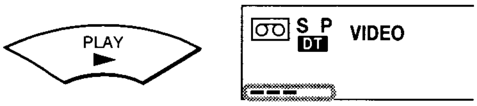
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". 1
- Regolare correttamente il sistema video

.

1 Inserire una cassetta registrata. L'apparecchio si accende. Se la cassetta è priva di linguetta di sicurezza la riproduzione inizia automaticamente. E

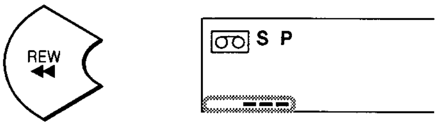


2 Premere il tasto **PLAY** per avviare la riproduzione. 27 G

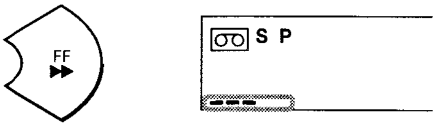


3 Per interrompere la riproduzione premere il tasto **STOP**. 29 N

- Per riavvolgere il nastro, premere il tasto **REW** in modo di arresto. 9



- Per avanzare rapidamente, premere il tasto **FF** in modo di arresto. 28



Nota

I televisori collegati tramite cavo SCART normalmente selezionano automaticamente il modo di ingresso video quando si preme il tasto PLAY.

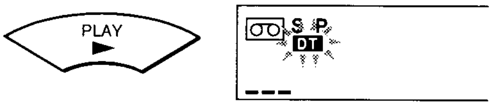
Riproduzione e registrazione con la velocità del nastro LP

Quando si riproduce un nastro che è stato registrato su un altro videoregistratore può succedere che il colore dell'immagine scompaia, che l'immagine diventi instabile o che ci siano disturbi. Consigliamo quindi di riprodurre su questo videoregistratore nastri registrati con questo videoregistratore.

Regolazione della tracciatura

- **Tracciatura digitale automatica**

  Quando inizia la riproduzione il videoregistratore regola automaticamente la tracciatura per ottenere immagini e suono chiari. L'indicatore "DT" lampeggia durante la regolazione.



Note

- Durante la regolazione l'immagine e il suono di riproduzione possono essere distorti.
- La tracciatura digitale automatica si attiva solo nel modo di riproduzione.

- **Regolazione manuale della tracciatura**

  Se il videoregistratore non può localizzare il punto di tracciatura migliore possibile, tenere premuto uno dei tasti **CH/TRK** fino ad ottenere l'immagine e il suono migliori possibili. 20

Note

- Per riportare il punto di tracciatura al centro premere contemporaneamente entrambi i tasti CH/TRK. 20
- Per riattivare la tracciatura digitale automatica tenere premuti contemporaneamente entrambi i tasti CHANNEL del videoregistratore per circa 2 secondi. B
- I disturbi sullo schermo possono non essere eliminati completamente a seconda del nastro usato particolarmente se il nastro è stato registrato su un altro videoregistratore.

Riduzione del rumore digitale (DNR – Digital Noise Reduction)

La funzione di riduzione del rumore di questo videoregistratore è efficace per la riproduzione di nastri con disturbi.

Regolare l'interruttore **DNR** come segue: C

ON: Normalmente regolarlo su "ON".
È possibile vedere le immagini con meno distrubi.
OFF: La funzione non si attiva.

Note

- La funzione DNR è disponibile solo nel modo di riproduzione.
- A seconda dell'immagine registrata, quando ad esempio è troppo vivida o troppo disturbata, la riduzione del rumore può non essere evidente.
- La riduzione del rumore può non agire su immagini registrate da apparecchi particolari come macchine di videogiochi o computer.

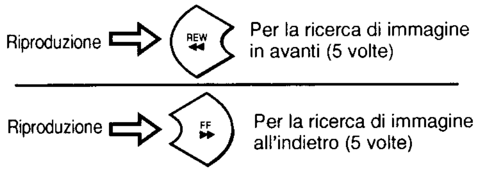
RIPRODUZIONE A VARIE VELOCITÀ

È possibile riprodurre il nastro a varie velocità.

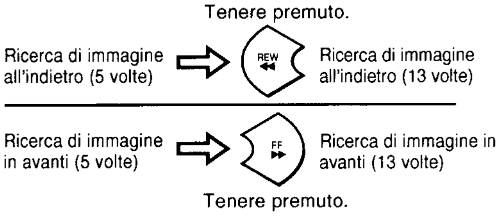
Ricerca di immagine

È possibile localizzare una scena particolare osservando le immagini di riproduzione nel modo di avanzamento rapido o riavvolgimento.

1 Durante la riproduzione premere il tasto **REW** o **FF**. Il nastro scorre a 5 volte la velocità normale di riproduzione. 9 28


Riproduzione
REW
Per la ricerca di immagine in avanti (5 volte)
Riproduzione
FF
Per la ricerca di immagine all'indietro (5 volte)

2 Se si tiene premuto il tasto **REW** o **FF** la velocità di ricerca aumenta. 9 28


Tenere premuto.
Ricerca di immagine all'indietro (5 volte)
REW
Ricerca di immagine all'indietro (13 volte)
Ricerca di immagine in avanti (5 volte)
FF
Ricerca di immagine in avanti (13 volte)
Tenere premuto.

Quando si rilascia il tasto la velocità torna ad essere 5 volte la velocità normale.

3 Per riprendere la riproduzione normale premere il tasto **PLAY**. 27 G

Note

- L'immagine presenta qualche interferenza. Questo non è un difetto dell'apparecchio.
- Se si riproduce a varie velocità un nastro registrato con la velocità del nastro LP o registrato su un altro videoregistratore, l'immagine può essere disturbata o in bianco e nero.
- Se si preme il tasto REW o FF durante il riavvolgimento o l'avanzamento rapido del nastro il videoregistratore passa al modo di ricerca di immagine.
  Se si preme il tasto REW o FF durante la ricerca di immagine il videoregistratore passa rispettivamente al modo di riavvolgimento o avanzamento rapido.

Immagine ferma

È possibile bloccare l'immagine per osservarla meglio.

1 Durante la riproduzione premere il tasto **PAUSE/STILL**. 26 F
L'immagine si blocca.

Riproduzione
PAUSE/STILL
Immagine ferma

2 Per riprendere la riproduzione premere di nuovo il tasto **PAUSE/STILL**. 26 F

Immagine ferma
PAUSE/STILL
Riproduzione normale

Il modo di immagine ferma viene disattivato automaticamente dopo 5 minuti circa e il videoregistratore torna alla riproduzione normale.

Note

- L'immagine ferma può tremare se si blocca l'immagine di un oggetto o una scena in rapido movimento. Questo non è un difetto dell'apparecchio.
- Se si riproduce a varie velocità un nastro registrato con la velocità del nastro LP o registrato su un altro videoregistratore, l'immagine può essere disturbata o in bianco e nero.
- Se appaiono disturbi nell'immagine ferma, regolare manualmente la tracciatura nel modo di rallentatore.

Regolazione della stabilità dell'immagine ferma

Se l'immagine ferma è distorta o sfarfalla, tenere premuto uno dei tasti **CH/TRK** fino a che l'immagine si stabilizza. 20

Nota
La distorsione dell'immagine ferma può non essere eliminata completamente.

Avanzamento di fotogramma

È possibile far avanzare l'immagine fotogramma per fotogramma.

1 Durante la riproduzione premere il tasto **PAUSE/STILL**. 26 F

PAUSE/STILL

2 Premere il tasto **PLAY**. 27 G
A ciascuna pressione del tasto l'immagine avanza di un fotogramma.
Se si tiene premuto il tasto l'immagine avanza ad 1/25 della velocità di riproduzione normale.

3 Per riprendere la riproduzione normale premere il tasto **PAUSE/STILL**. 26 F

Riproduzione al rallentatore

È possibile riprodurre ad 1/6 o 1/12 della velocità di riproduzione normale.

1. Durante la riproduzione premere il tasto **SLOW**. Il nastro scorre a circa 1/6 della velocità di riproduzione normale. **8**

   SLOW

2. Se si preme di nuovo il tasto **SLOW**, la velocità diventa 1/12. **8**
   A ciascuna pressione del tasto la velocità si alterna tra 1/6 e 1/12.

3. Per riprendere la riproduzione normale premere il tasto **PLAY**. **27** **G**

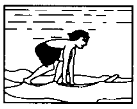
   Il modo di riproduzione al rallentatore viene disattivato automaticamente dopo 5 minuti circa e il videoregistratore torna al modo di riproduzione normale.

Nota
L'immagine al rallentatore può sfarfallare verso l'alto o il basso. Questo non è un difetto dell'apparecchio.

Regolazione manuale della tracciatura

Se l'immagine al rallentatore è disturbata, tenere premuto uno dei tasti **CH/TRK** fino ad ottenere l'immagine migliore. **20**

CH/TRK



Nota
I disturbi nell'immagine al rallentatore possono non essere eliminati completamente con la regolazione della tracciatura.

Uso della manopola JOG/anello SHUTTLE

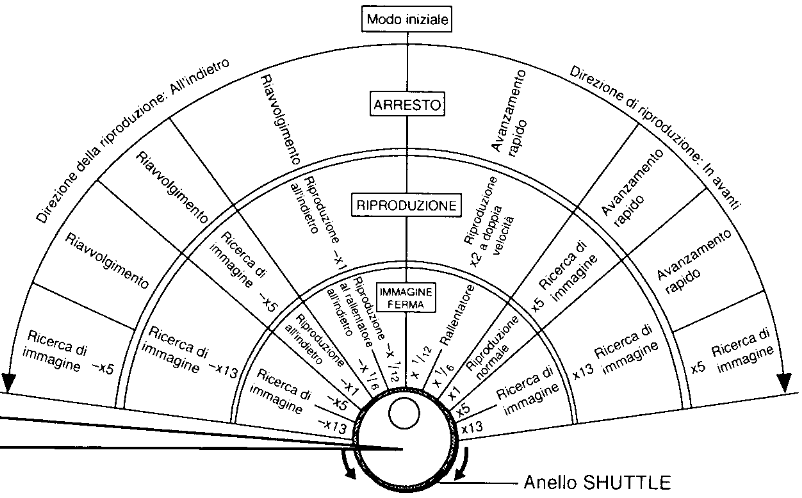
È anche possibile riprodurre un nastro a varie velocità girando la manopola **JOG** o l'anello **SHUTTLE** del videoregistratore. **O**

	Rallentatore		Ricerca di immagine	Ricerca di immagine accelerata
PAL/MESECAM (SP)	1/12	1/6	x5	x13
PAL/MESECAM (LP)	1/12	1/6	x5	x13
NTSC (SP)	1/15	1/7	x5	x9
NTSC (SLP)	1/15	1/7	x5	x27

Uso della manopola JOG

1) Durante la riproduzione, premere il tasto **PAUSE/ STILL**. **F**
2) Girare la manopola JOG in senso orario o in senso antiorario. L'avanzamento per fotogramma viene ottenuto a seconda della velocità con cui si gira la manopola. Quando si ferma la manopola, si ottiene un'immagine ferma. **O**

- Per disattivare il modo di manopola JOG, premere ancora il tasto **PAUSE/STILL**.


Modo iniziale
ARRESTO
RIPRODUZIONE
IMMAGINE FERMA
Direzione della riproduzione: All'indietro
Direzione di riproduzione: In avanti
Riavvolgimento
Riavvolgimento
Riavvolgimento
Ricerca di immagine −x5
Ricerca di immagine −x13
Ricerca di immagine −x5
Riproduzione all'indietro −x1
Riproduzione all'indietro −x1
Riproduzione al rallentatore all'indietro −x 1/6
−x 1/12
Ricerca di immagine −x5 −x13
x 1/12
Rallentatore x 1/6
Riproduzione normale x1
Ricerca di immagine x5 x13
Riproduzione a doppia velocità x2
x5 Ricerca di immagine
x13 Ricerca di immagine
x5 Ricerca di immagine
Avanzamento rapido
Avanzamento rapido
Avanzamento rapido
Avanzamento rapido

Anello SHUTTLE

Note
- Il modo di riproduzione al rallentatore all'indietro viene rilasciato automaticamente dopo circa 1 minuto e inizia la riproduzione in avanti.
- Il modo di immagine ferma o la riproduzione all'indietro viene rilasciato automaticamente dopo circa 5 minuti e inizia la riproduzione in avanti.
- L'avanzamento rapido o il riavvolgimento avviato quando il videoregistratore era nel modo di arresto continua anche se si rilascia l'anello SHUTTLE. Per interrompere, premere il tasto STOP. **N** **29**

3 3

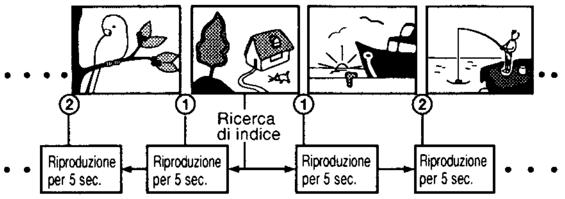
RIPRODUZIONE

RICERCA DI INDICI

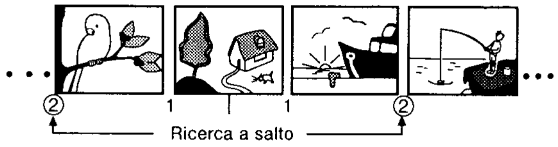
È possibile localizzare facilmente il programma desiderato usando i segnali di indice registrati sul nastro.

Come funziona

Ricerca di indice
Il videoregistratore riproduce ciascun programma con un segnale di indice per circa 5 secondi.


②
①
Ricerca di indice
①
②
Riproduzione per 5 sec.
Riproduzione per 5 sec.
Riproduzione per 5 sec.
Riproduzione per 5 sec.

Ricerca a salto
Il videoregistratore trova e riproduce un programma con il segnale di indice specificato.


②
1
1
②
Ricerca a salto

Per usare questa funzione i segnali di indice devono essere registrati sul nastro. Per registrare i segnali di indice seguire il procedimento sotto indicato.

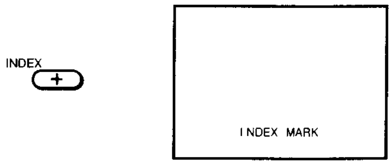
Registrazione dei segnali di indice

■ **Registrazione automatica dei segnali di indice**
Un segnale di indice viene registrato automaticamente **quando inizia una registrazione**.

Note
- Un segnale di indice non viene registrato quando il videoregistratore riprende la registrazione dal modo di pausa di registrazione.
- Un segnale di indice viene registrato anche quando inizia la registrazione di un programma timer.

■ **Registrazione manuale dei segnali di indice**
I segnali di indice possono essere registrati manualmente nei punti desiderati sul nastro **durante la registrazione**.

Premere il tasto **INDEX** (+) al punto desiderato. 6


INDEX
+
INDEX MARK

Nota
Quando si registrano due o più segnali di indice, sono necessari degli intervalli: più di 1 minuto alla velocità del nastro SP e più di 2 minuti alla velocità del nastro LP.

Ricerca di indice

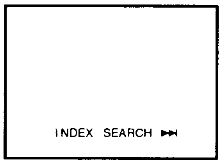
Questa funzione riproduce il nastro per circa 5 secondi a ciascun segnale di indice.

1 Inserire una cassetta con i segnali di indice registrati. **E**

2 Premere il tasto **INDEX** (–) o (+) in modo di arresto o di riproduzione. **6**

INDEX (–) : Per cercare all'indietro

INDEX (+) : Per cercare in avanti


INDEX SEARCH ▸▸|

Il videoregistratore fa avanzare o riavvolge il nastro. Quando viene trovato un segnale di indice il videoregistratore riproduce il nastro per circa 5 secondi e quindi riprende l'avanzamento rapido o il riavvolgimento. Questo procedimento viene ripetuto a ciascun segnale di indice.

3 Premere il tasto **PLAY** quando viene trovato il programma desiderato. **27** **G**
Inizia la riproduzione normale.

Note

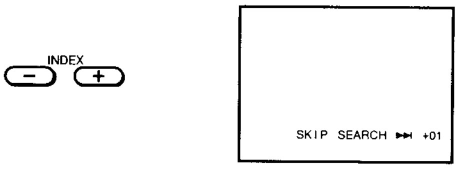
- All'inizio del nastro la funzione di ricerca di indice può non funzionare correttamente.
- Se si sono registrati segnali di indice su un nastro registrato su un altro videoregistratore, la registrazione può essere offuscata nei punti di indice e la ricerca di indice può non funzionare correttamente.

Ricerca a salto

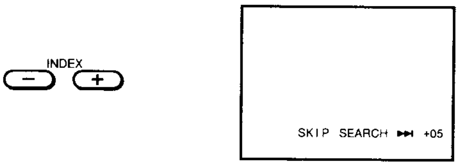
Questa funzione fa avanzare o riavvolge il nastro fino al punto dove è registrato il segnale di indice selezionato e inizia la riproduzione da quel punto.

1 Inserire una cassetta con i segnali di indice registrati. **E**

2 Premere il tasto **INDEX** (–) o (+) due volte in modo di arresto o di riproduzione. **6**


INDEX
SKIP SEARCH ▸▸| +01

3 Premere il tasto **INDEX** (–) o (+) a seconda della direzione in cui si trova il segnale di indice da localizzare. **6**
A ciascuna pressione del tasto (–) o (+), il numero rispettivamente diminuisce o aumenta.

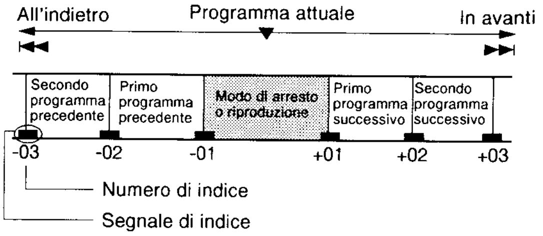

INDEX
SKIP SEARCH ▸▸| +05

Il videoregistratore inizia a cercare il punto specificato con il tasto (–) o (+). Quando il punto viene trovato la riproduzione inizia automaticamente.

Note

- È possibile selezionare un numero di indice fino a ±20.
- La ricerca a salto viene disattivata se si preme il tasto PLAY o STOP.

Localizzazione del numero di indice


All'indietro
Programma attuale
In avanti
Secondo programma precedente
Primo programma precedente
Modo di arresto o riproduzione
Primo programma successivo
Secondo programma successivo
-03
-02
-01
+01
+02
+03
Numero di indice
Segnale di indice

[Esempio]

- Per localizzare l'inizio del primo programma precedente, premere il tasto **INDEX** (–) tre volte per selezionare il numero di indice -02.
- Per localizzare l'inizio del primo programma successivo, premere il tasto **INDEX** (+) due volte per selezionare il numero di indice +01.

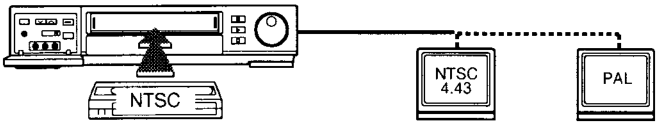
RIPRODUZIONE DI NASTRI REGISTRATI IN NTSC

Questo videoregistratore può riprodurre nastri registrati con il sistema NTSC. È possibile vedere l'immagine di riproduzione su un televisore per il sistema PAL o un televisore per il sistema NTSC 4.43.

Regolazione per la riproduzione NTSC

Quando si riproduce un nastro registrato in NTSC su questo videoregistratore, eseguire la regolazione sullo schermo SET UP a seconda del televisore impiegato.

Nastro NTSC: Nastri su cui sono registrate trasmissioni del sistema NTSC M, usato principalmente negli USA e in Giappone, e nastri registrati con il sistema video NTSC reperibili in commercio.



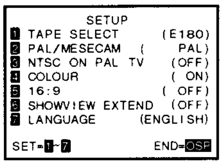
Televisore multisistema (compatibile NTSC 4.43)

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

2 Premere **il tasto numerico 3** per selezionare "SETUP". **4**

3 Regolare "NTSC ON PAL TV" su "**OFF**" premendo **il tasto numerico 3**. **4**

③



```
             SETUP
1 TAPE SELECT           (E180)
2 PAL/MESECAM  (          PAL)
3 NTSC ON PAL TV         (OFF)
4 COLOUR                 ( ON)
5 16:9                  ( OFF)
6 SHOWVIEW EXTEND        (OFF)
7 LANGUAGE           (ENGLISH)

SET=1~7               END=OSP
```

4 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

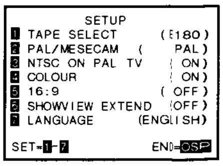
Televisore per il sistema PAL

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

2 Premere **il tasto numerico 3** per selezionare "SETUP". **4**

3 Regolare "NTSC ON PAL TV" su "**ON**" premendo **il tasto numerico 3**. **4**

③



```
             SETUP
1 TAPE SELECT           (E180)
2 PAL/MESECAM  (          PAL)
3 NTSC ON PAL TV         ( ON)
4 COLOUR                 ( ON)
5 16:9                  ( OFF)
6 SHOWVIEW EXTEND        (OFF)
7 LANGUAGE           (ENGLISH)

SET=1~7               END=OSP
```

4 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Nota

Con questo videoregistratore è possibile riprodurre un nastro NTSC registrato con la velocità del nastro SLP. Osservare però quanto segue.

– La qualità dell'immagine e del suono di riproduzione non è chiara.
– La riproduzione a varie velocità (ricerca di immagine, immagine ferma, rallentatore, ecc.) non può essere eseguita correttamente.
– La tracciatura digitale automatica può non essere eseguita correttamente.

Note sull'uso di un televisore PAL per la riproduzione NTSC

- Usare un televisore compatibile con i segnali video PAL del PAL 60 (525 linee).
  Se si usa un televisore non compatibile con i segnali video PAL del PAL 60 (cioè se si usa un televisore compatibile con i segnali video PAL del PAL 50 (625 linee)), le immagini di riproduzione NTSC possono scorrere verso l'alto o il basso. Questo non è un malfunzionamento del videoregistratore o del televisore. Se il televisore è dotato di un comando di tenuta verticale può essere possibile fermare lo scorrimento delle immagini regolando tale comando.
  Sui segnali video PAL del PAL 50 e PAL 60:
    PAL 50 : è un segnale normale con un segnale video PAL di 50 semiquadri (625 linee).
    PAL 60 : è un segnale speciale con un segnale video PAL di 60 semiquadri (525 linee).
  Alcuni televisori funzionano correttamente solo con segnali PAL 50, mentre altri televisori funzionano correttamente con segnali sia PAL 50 che PAL 60.
  Se quindi il televisore impiegato permette di commutare tra PAL 50 (625 linee) e PAL 60 (525 linee), è possibile vedere un nastro registrato in NTSC usando il sistema di colore PAL del televisore.
- A seconda del televisore impiegato l'immagine può contrarsi verticalmente e strisce nere possono apparire in cima e in fondo allo schermo del televisore. Questo non è indice di malfunzionamenti.
- La riproduzione a varie velocità (ricerca di immagine, immagine ferma, rallentatore, ecc.) può produrre immagini distorte e molti disturbi nell'immagine.
- Se un nastro preregistrato con la velocità del nastro SP viene riprodotto nel modo di ricerca di immagine, l'immagine può essere riprodotta senza colore.

Nota

Per la visione di nastri registrati in NTSC consigliamo di impiegare un televisore NTSC 4.43.

ASCOLTO DEL SUONO EMESSO

Ascolto del suono emesso

Quando si ascolta il suono di un programma TV o si riproduce una videocassetta registrata in Hi-Fi, premere il tasto **A.SELECT** per selezionare l'emissione sonora desiderata. Quando si preme il tasto **A.SELECT**, il suono emesso e l'indicatore cambiano come indicato qui sotto: 13

Tipo di suono / Display del videoregistratore	Suono stereo	Suono bilingue	Trasmissione con suono normale
L R	Udibile in stereo. (canale sinistro e canale destro)	Canale I (principale) udibile dal diffusore sinistro, canale II (secondario) udibile dal diffusore destro.	Udibile in monoaurale.
L	Canale sinistro udibile sia dal diffusore sinistro che dal diffusore destro.	Canale I (principale) udibile sia dal diffusore sinistro che dal diffusore destro.	Udibile in monoaurale.
R	Canale destro udibile sia dal diffusore sinistro che dal diffusore destro.	Canale II (secondario) udibile sia dal diffusore sinistro che dal diffusore destro.	Udibile in monoaurale.
Sia L che R si spengono.	Udibile in monoaurale.	Canale I (principale) udibile sia dal diffusore sinistro che dal diffusore destro.	Udibile in monoaurale.
MIX L R	Suono missato del canale sinistro e del canale destro, e pista audio normale.		

Suoni di un programma TV registrato
Questo videoregistratore è in grado di registrare il suono con il sistema Hi-Fi. Le trasmissioni stereo e le trasmissioni con suono bilingue vengono registrate con il loro sistema sonoro originale indipendentemente dalla regolazione.

Note

- Quando si ascolta una trasmissione stereo o si riproduce un nastro Hi-Fi registrato in stereo, è necessario collegare il videoregistratore ad un sistema audio stereo o ad un televisore stereo con un cavo SCART.
  Il suono che viene emesso dalla presa di uscita antenna (AERIAL OUTPUT) è monoaurale.
- Se si riproduce un nastro che non è stato registrato in Hi-Fi, gli indicatori L e R si spengono automaticamente e il suono emesso è monoaurale.

Sistema Hi-Fi e audio normale

La pista audio Hi-Fi stereo (2 canali) di questo apparecchio può essere utilizzata per riprodurre un eccellente suono ad alta fedeltà. Il suono che è stato registrato sulla pista audio normale è compatibile con i videoregistratori convenzionali.

Quando si riproduce un nastro registrato in Hi-Fi, premere il tasto **A.SELECT** per selezionare l'emissione sonora desiderata. 13
Gli indicatori L e R sul display del videoregistratore indicano il tipo di emissione sonora che si sta selezionando. Pertanto, è possibile scegliere l'emissione sonora desiderata osservando gli indicatori illuminati e/o non illuminati.

Funzione di missaggio audio

Il videoregistratore può emettere suoni missandone uno sulle piste audio Hi-Fi stereo e uno sulla pista audio normale.

Questa funzione consente, per esempio, di registrare la propria voce su un nastro registrato in Hi-Fi .

Premere il tasto **A.SELECT** varie volte per far apparire “MIX” sul display del videoregistratore. 13

A.SELECT
MIX
L
R

3 6

RIPRODUZIONE

FUNZIONI DEL CONTATORE

Queste funzioni facilitano la riproduzione.

Funzioni del contatore

È possibile vedere l'orario, il contatempo lineare o il tempo rimanente del nastro sul display del videoregistratore o sullo schermo del televisore.

Preparativi
Regolare il selettore VTR/TV su "VTR". **1**

Indicazioni del contatore

A ciascuna pressione del tasto **COUNT**, il display del videoregistratore cambia in sequenza come segue: **19**

COUNT

→ Contatempo lineare (HMS)
↓
Tempo rimanente del nastro (TR)
↓
Orario

Le indicazioni sopra riportate appaiono anche sullo schermo del televisore se si preme in tasto **DISPLAY** e possono essere alternate premendo il tasto **COUNT**. **31** **19**

Per riportare il contatempo lineare a "0H00M00S" **18**
Il contatempo lineare viene riportato automaticamente a "0H00M00S" quando la cassetta viene espulsa.
Se si desidera azzerarlo in altri punti, come all'inizio di una nuova registrazione, basta premere il tasto **COUNTER RESET**.

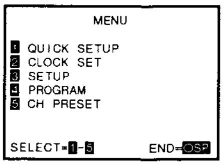
Note
- Il contatempo lineare non funziona per le parti non registrate del nastro.
- Quando la cassetta viene espulsa o il videoregistratore viene spento il display passa a visualizzare l'orario.
- Se il nastro viene riavvolto oltre "0H00M00S", " – " appare sul display del videoregistratore.
- Il tempo indicato dal contatempo lineare è solo un'indicazione approssimativa.

Tempo rimanente del nastro

1 Accendere il videoregistratore e inserire una cassetta. **E**

2 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

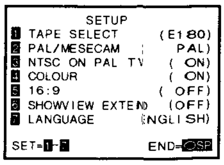
OSP



```
              MENU

1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET


SELECT=1-5              END=OSP
```

3 Premere il **tasto numerico 3** per selzionare "SETUP". **4**

③



```
            SETUP
1 TAPE SELECT         (E180)
2 PAL/MESECAM        :  PAL)
3 NTSC ON PAL TV      (  ON)
4 COLOUR              (  ON)
5 16:9                ( OFF)
6 SHOWVIEW EXTEND     (OFF)
7 LANGUAGE          (ENGLISH)

SET=1-7              END=OSP
```

4 Premere **il tasto numerico 1** per selezionare la durata del nastro da impiegare. **4**

①

E180: Per nastri E-195 o più brevi
E240: Per nastri E-210 o E-240
E260: Per nastri E-260
E300: Per nastri E-300

5 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

6 Premere il tasto **COUNT**. **19**
Appare l'indicatore di tempo rimanente del nastro.

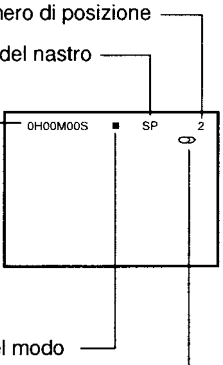
COUNT

Note
- Il tempo rimanente visualzzato è solo un'indicazione approssimativa.
- Il tempo rimanente è calcolato in base alla velocità del nastro (SP, LP o SLP) e al tipo di nastro.
- È necessario stabilire correttamente la durata del nastro come indicato al punto *4* prima di usare la visualizzazione del tempo rimanente.

VISUALIZZAZIONE SULLO SCHERMO / COMPATIBILITÀ 16:9 (SCHERMO CINEMA)

Indicazioni e indicatori sullo schermo

Premere il tasto **DISPLAY** per visualizzare il modo di funzionamento. Se si preme di nuovo questo tasto l'indicazione scompare e sullo schermo rimane solo l'indicazione del contatore. Per eliminare anche questa premere ancora una volta il tasto **DISPLAY**. 31



Numero di posizione

Velocità di registrazione del nastro (SP/LP/SLP)

Indicazione del contatore
- Contatempo lineare
- Tempo rinamente di nastro
- Orario

A ciascuna pressione del tasto **COUNT** l'indicazione cambia. 19

L'indicatore varia a seconda del modo di funzionamento.

Esplusione della cassetta	⏏
Arresto	■
Riproduzione a doppia velocità Avanzamento rapido Ricerca dell'immagine in avanti	▶▶
Riavvolgimento Ricerca dell'immagine all'indietro	◀◀
Registrazione	●
Pausa di registrazione	❚❚●
Riproduzione	▶
Riproduzione all'indietro	◀
Immagine ferma Avanzamento fotogramma per fotogramma	❚❚
Riproduzione al rallentatore	❚▶
Riproduzione al rallentatore all'indietro	◀❚

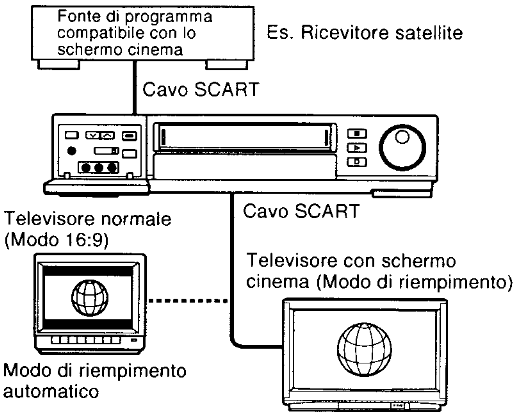
L'indicazione varia con le trasmissioni stereo/bilingui ricevute.

Trasmissioni STEREO/BILINGUI	
Programma TV stereo	ꝏ
Programma TV bilingue (trasmesso in un'altra lingua)	I / II
Programma TV normale (suono monoaurale)	Non illuminato

Oltre alle indicazioni sopra, il videoregistratore può visualizzarne altre come quelle per la ricerca di indici. Vedere le relative pagine per ciascuna spiegazione.

Compatibilità 16:9 (Schermo cinema)

Quando si riproduce un nastro disponibile in commercio che è stato registrato nel formato cinema o quando si registra o si riproduce un programma TV con formato cinema tramite il ricevitore satellite collegato, ecc., il videoregistratore regola automaticamente l'immagine in modo che riempia lo schermo.


Fonte di programma compatibile con lo schermo cinema
Es. Ricevitore satellite
Cavo SCART
Cavo SCART
Televisore normale (Modo 16:9)
Televisore con schermo cinema (Modo di riempimento)
Modo di riempimento automatico

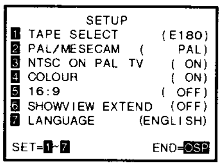
Modo di riempimento automatico

Importante
Collegare un apparecchio compatibile con lo schermo cinema al videoregistratore usando il cavo SCART.

Regolazione dello schermo cinema 16:9

1. Premere il tasto **OSP** per visualizzare lo schermo MENU. 23
2. Premere **il tasto numerico 3** per selezionare "SETUP". 4
3. Premere **il tasto numerico 5** per selezionare "16:9". 4

⑤



```
              SETUP
1 TAPE SELECT         (E180)
2 PAL/MESECAM (        PAL)
3 NTSC ON PAL TV      ( ON)
4 COLOUR              ( ON)
5 16:9               ( OFF)
6 SHOWVIEW EXTEND     (OFF)
7 LANGUAGE        (ENGLISH)
SET=1-7              END=OSP
```

OFF: Selezionarlo se non si usa un televisore con schermo cinema.

AUTO: Selezionarlo quando si usa un televisore con schermo cinema.
Il videoregistratore individua automaticamente i programmi TV con schermo cinema e i programmi TV con schermo normale durante la riproduzione e la registrazione.

OFF: Il videoregistratore normalmente riproduce e registra nel modo compatibile con lo schermo cinema 16:9. Regolare se il videoregistratore non può individuare programmi TV con la regolazione "AUTO".

4. Premere due volte il tasto **OSP** per ritornare al normale schermo del televisore. 23

REGISTRAZIONE DI PROGRAMMI TV

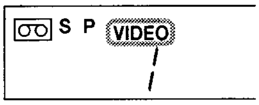
Questa sezione spiega le operazioni di registrazione fondamentali.

Registrazione basilare

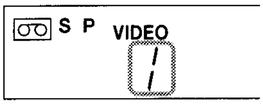
Preparativi
- Accendere il videoregistratore.
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". 1
- Selezionare correttamente il sistema video.

1 Inserire una cassetta dotata di linguetta di sicurezza. Ⓔ

2 Premere il tasto **TV/VIDEO** in modo che l'indicatore "VIDEO" appaia sul display del videoregistratore. 2

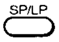


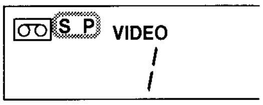
3 Selezionare il canale (numero di posizione) da registrare con i tasti **CHANNEL** del videoregistratore o i tasti **CH/TRK** o **i tasti numerici** del telecomando. Ⓑ 20 4



Se è visualizzato "L1", "L2" o "SA" premere il tasto **INPUT SELECT** in modo che appaia il numero di posizione. 3

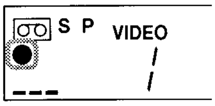
4 Premere il tasto **SP/LP** per selezionare la velocità del nastro per la registrazione. 12





SP: Adatta a registrazioni normali con una migliore qualità di immagine e suono.
LP: Adatta per raddoppiare il tempo di registrazione ma con una qualità di suono e immagine inferiore alla velocità SP.

5 Premere il tasto **REC** sul videoregistratore o premere contemporaneamente i due tasti **REC** sul telecomando. Ⓐ 7
La registrazione inizia.



6 Premere il tasto **STOP** per interrompere la registrazione. 29 Ⓝ

Visione di un programma TV mentre se ne registra un altro

1) Durante la registrazione premere il tasto **TV/VIDEO** in modo che l'indicatore "VIDEO", se visualizzato, scompaia dal display del videoregistratore. 2

2) Selezionare un altro canale con il selettore di canale del televisore.

Nota
Per vedere il programma in fase di registrazione premere il tasto TV/VIDEO in modo che l'indicatore "VIDEO" appaia sul display del videoregistratore. Selezionare il canale video o il modo di ingresso video sul televisore.

Eliminazione di scene non necessarie durante la registrazione

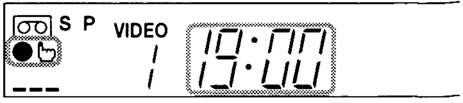
Premere il tasto **PAUSE/STILL** per interrompere temporaneamente la registrazione. Per riprendere la registrazione premere di nuovo il tasto **PAUSE/STILL**. 26 Ⓕ

Nota
Il videoregistratore passa automaticamente al modo di arresto se il modo di pausa di registrazione continua per 10 minuti.

Registrazione a timer ad un solo tasto

È possibile stabilire l'orario di spegnimento durante la registrazione.
Premere il tasto **REC** del videoregistratore per stabilire il tempo di spegnimento. Ⓐ
A ciascuna pressione del tasto, la visualizzazione cambia come segue:

Esempio



Premere REC	L'orario di fine registrazione
una volta	l'ora o mezzora successiva
due volte	1 ora
tre volte	1 ora e 30 minuti
:	:
otto volte	4 ore
nove volte	disattivato (– : – –)

Impostando l'orario di fine della registrazione, la registrazione si interrompe e il videoregistratore si spegne automaticamente.

Note
- Per disattivare la registrazione a timer ad un solo tasto in corso, premere il tasto STOP. Ⓝ
- Per ritardare l'orario di fine registrazione, premere ancora il tasto REC sul videoregistratore. Ⓐ
- Se l'orologio del videoregistratore non è stato regolato, la registrazione a timer ad un solo tasto non si attiva.

REGISTRAZIONE DI PROGRAMMI DA UN RICEVITORE SATELLITE

Se si usa un ricevitore satellite, è possibile collegarlo a questo videoregistratore per registrare programmi via satellite.

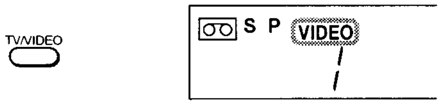
Procedimento di registrazione

Preparativi

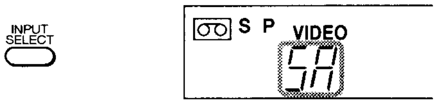
- Accendere il videoregistratore.
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". 1
- Assicurarsi che il ricevitore satellite sia collegato correttamente al videoregistratore usando un cavo SCART e accenderlo.

1 Inserire una cassetta dotata di linguetta di sicurezza. E

2 Premere il tasto **TV/VIDEO** in modo che l'indicatore "VIDEO" appaia sul display del videoregistratore. 2



3 Premere il tasto **INPUT SELECT** per fare apparire "SA" sul display del videoregistratore. 3

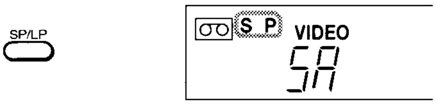


A ciascuna pressione del tasto **INPUT SELECT**, il display cambia come indicato sotto: 3

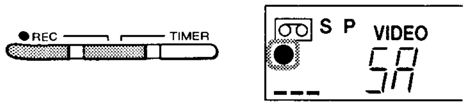
→ Televisore (Numero di posizione) → L1 → L2 → SA (Satellite)

4 Selezionare il programma via satellite che si desidera registare usando il selettore di stazione del ricevitore satellite collegato.
Controllare che il programma selezionato appaia sullo schermo del televisore.

5 Premere il tasto **SP/LP** per selezionare la velocità del nastro per la registrazione. 12



6 Premere il tasto **REC** sul videoregistratore o premere contemporaneamente i due tasti **REC** sul telecomando. A 7
La registrazione inizia.



7 Premere il tasto **STOP** per interrompere la registrazione. 29 N

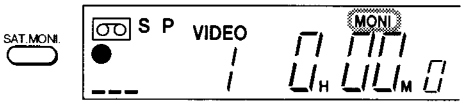
Funzione di visione ricevitore satellite

È possibile guardare un programma via satellite dal ricevitore satellite collegato anche quando il videoregistratore sta registrando un programma televisivo, o è nel modo di riproduzione o di arresto.

Importante
Questa funzione si attiva solo quando il televisore e il ricevitore satellite sono collegati al videoregistratore tramite la presa SCART.

■ Per guardare un programma via satellite durante la registrazione di un programma TV

1) Durante la registrazione di un programma TV, premere il tasto **SAT.MONI**. 30
Appare l'indicatore "MONI".



A ciascuna pressione del tasto **SAT.MONI.**, l'indicatore "MONI" appare e scompare alternatamente. 30

2) Selezionare il programma via satellite che si desidera guardare sul ricevitore satellite collegato.

■ Per guardare un programma via satellite mentre il videoregistratore è nel modo di riproduzione o di arresto

1) Premere il tasto **SAT.MONI.** per fare apparire l'indicatore "MONI" sul display del videoregistratore. 30
2) Premere il tasto **TV/VIDEO** per fare apparire l'indicatore "VIDEO" sul display del videoregistratore. 2
3) Selezionare il programma via satellite che si desidera guardare sul ricevitore satellite collegato.

Note

- Se si fa apparire sul televisore una visualizzazione sullo schermo (p.es. lo schermo del menu) questa funzione viene disattivata.
- La funzione di visione ricevitore satellite è disponibile anche nel modo di registrazione di un programma a timer, nel modo di attesa timer o nel modo di registrazione a timer ad un solo tasto.

■ Per guardare un programma TV durante la registrazione di un programma via satellite

1) Durante la registrazione di un programma via satellite, premere il tasto **TV/VIDEO** per fare scomparire l'indicatore "VIDEO" dal display del videoregistratore. 2
2) Selezionare il programma TV che si desidera guardare sul televisore.

REGISTRAZIONE DI PROGRAMMI TIMER

Il timer programmabile consente di registrare fino a 6 diversi programmi nell'arco di un mese.

Procedimento di programmazione del timer

Preparativi

- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". **1**
- Accendere il videoregistratore.
- Verificare che l'orologio sia regolato correttamente.
- Selezionare correttamente il sistema video.

Esempio

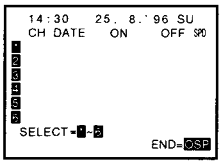
Per registrare un programma di una stazione memorizzata sul numero di posizione 1 (Es.ARD) alla velocità del nastro SP dalle 21:30 alle 22:00 del 30 agosto. Oggi è il 25 agosto.

1 Inserire una cassetta dotata di linguetta di sicurezza. **E**

2 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

3 Premere **il tasto numerico** 4 per selezionare "PROGRAM". **4**

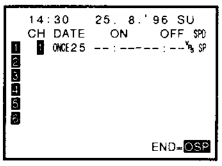
④



```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1
2
3
4
5
6
SELECT=1~6
                END=OSP
```

4 Selezionare il programma numero 1. **4**

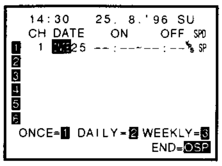
①



```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE25 --:-----:-- SP
2
3
4
5
6
                END=OSP
```

5 Per selezionare il numero di posizione 1, premere **i tasti numerici 0** e **1**. **4**

⓪→①



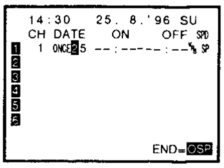
```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ---25 --:-----:-- SP
2
3
4
5
6
ONCE=1 DAILY=2 WEEKLY=3
                END=OSP
```

- Se si registra da apparecchi esterni collegati, visualizzare "L1", "L2" o "SA" premendo il tasto **INPUT SELECT** come segue: **3**
  - L1: Tramite la presa IN 1/OUT (SCART) sul pannello posteriore.
  - L2: Tramite le prese LINE IN 2 sul pannello anteriore.
  - SA: Dal ricevitore satellite collegato alla presa SAT./DECODER (SCART) sul pannello posteriore.

Per correggere:
Premere il tasto SHIFT (←) per tornare indietro a una voce o il tasto SHIFT (→) per spostarsi avanti. **22**

6 Selezionare la registrazione per una volta. **4**

①

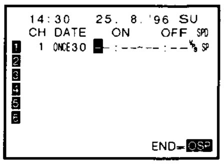


```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE25 --:-----:-- SP
2
3
4
5
6
                END=OSP
```

È anche possibile selezionare la registrazione di programmi timer quotidiana o settimanale.

7 Selezionare la data di registrazione. **4**

③→⓪

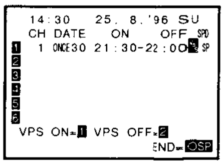


```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE30 --:-----:-- SP
2
3
4
5
6
                END=OSP
```

8 Selezionare l'orario di inizio e l'orario di fine della registrazione. **4**

②→①→③→⓪

②→②→⓪→⓪

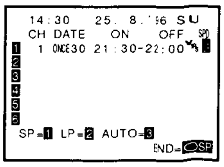


```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE30 21:30-22:00 SP
2
3
4
5
6
VPS ON=1 VPS OFF=2
                END=OSP
```

9 Per attivare la funzione VPS, premere **il tasto numerico 1**: se non serve, premere **il tasto numerico 2**. **4**

Nota
Se si regola il videoregistratore nel modo di controllo del ricevitore satellite al punto *5* (SA è visualizzato), non è possibile regolare la funzione VPS.

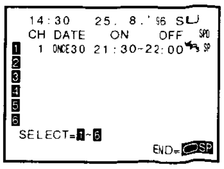
①



```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE30 21:30-22:00
2
3
4
5
6
SP=1 LP=2 AUTO=3
                END=OSP
```

10 Selezionare la velocità del nastro (SP). **4**

①



```
14:30   25. 8.'96 SU
CH DATE   ON    OFF SPD
1  1 ONCE30 21:30-22:00 SP
2
3
4
5
6
SELECT=1~6
                END=OSP
```

(Per la velocità "AUTO".)

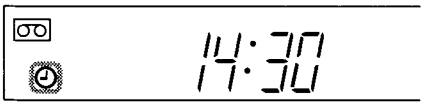
Quando si regola VPS al punto *9*, non è possibile selezionare "AUTO".
Usare la funzione VPS o la velocità AUTO.

Per memorizzare un altro programma, ripetere i punti da *4* a *10*. Al punto *4* selezionare il numero di programma successivo.

11 Premere il tasto **OSP**. **23**
Ora la programmazione è completa.

12 Premere contemporaneamente i due tasti **TIMER**. **25**

L'apparecchio si spegne e entra nel modo di attesa timer.



Registrazione quotidiana e settimanale

■ **Registrazione quotidiana**

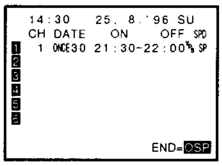
È possibile registrare un programma TV sullo stesso canale alla stessa ora ogni giorno dal lunedì al venerdì. Premere **il tasto numerico 2** per visualizzare "DAILY" al punto *6*. **4**

■ **Registrazione settimanale**

È possibile registrare un programma TV sullo stesso canale alla stessa ora e giorno ogni settimana. Premere **il tasto numerico 3** per visualizzare "WEEKLY" e quindi **un tasto numerico da 1 a 7** per selezionare il giorno della settimana al punto *6*. **4**

Verifica dei programmi timer (durante la registrazione di programmi timer)

Premere il tasto **OSP**. **23**
Appare lo schermo di conferma.



```
  14:30     25. 8.'96 SU
  CH DATE     ON     OFF SPD
1  1 ONCE30 21:30-22:00⅟₀ SP
2
3
4
5
6
                    END=OSP
```

Dopo circa 30 secondi lo schermo scompare.

Cambiamento/cancellazione dei programmi timer

1) Se l'indicatore ⏲ è illuminato, premere i due tasti **TIMER** per spegnerlo e quindi accendere il videoregistratore premendo il tasto **ON/STANDBY**. **25** **17**

2) Cambiare le voci eseguendo i punti da *2* a *11*.
   - Per cancellare un programma selezionare il numero del programma da cancellare al punto *4* e premere il tasto **CANCEL**. Quella riga viene cancellata. **24**

3) Premere i due tasti **TIMER** per tornare al modo di attesa timer. **25**

Registrazione o riproduzione nel modo di attesa timer

Prima premere i due tasti **TIMER** per disattivare il modo di attesa timer e quindi premere il tasto **ON/STANDBY** per accendere il videoregistratore. Il videoregistratore può essere usato. **25** **17**

- Ricordarsi di premere di nuovo i due tasti **TIMER** per riportare il videoregistratore al modo di attesa timer una volta che si è finito. **25**

VPS (Video Programme System)

Alcune emittenti TV trasmettono segnali VPS insieme ai programmi televisivi. Il videoregistratore può controllare gil orari di inizio e di fine della registrazione a timer usando i segnali VPS per assicurare la registrazione dell'intero programma, compensando qualsiasi modifica nell'orario di trasmissione pubblicato, come cambiamenti di orario, prolungamenti o interruzioni del programma. Se il programma TV viene interrotto durante la registrazione a timer controllata da VPS, la registrazione viene interrotta automaticamente e riprende quando il programma continua.

Importante
La funzione VPS agisce solo quando i segnali VPS sono trasmessi insieme al programma TV da registrare.
Se l'emittente non trasmette i segnali VPS la registrazione a timer viene eseguita nel modo normale anche se era stato programmato il modo VPS.

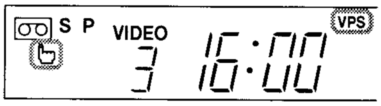
Indicazione di errore

- L'indicatore "E" (errore) appare sul display del videoregistratore se si premono i tasti TIMER quando:
  — non è inserita una cassetta.
  — la cassetta inserita è priva di linguetta di sicurezza
  — non è stato memorizzato un programma timer.
  In questi casi la registrazione non può essere eseguita.
- Per dettagli sulle indicazioni di errore nel caso di interruzioni di corrente o accavallamento dei programmi.

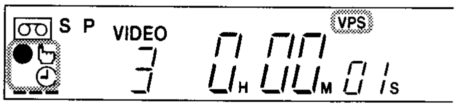
Registrazione ad un solo tasto con la funzione VPS

Questa videoregistratore può eseguire la registrazione di programmi TV con segnali VPS. Usando il sistema VPS, il videoregistratore riconosce eventuali cambiamenti nell'orario dei programmi. Dopo la registrazione, il videoregistratore si spegne automaticamente.

1) Premere il tasto **VPS** sul telecomando durante la registrazione, nel modo di pausa di registrazione o nel modo di arresto (indicatori VPS e di registrazione a timer ad un solo tasto illuminato). **32**



2) Entro 10 secondi, premere contemporaneamente i due tasti **TIMER**. **25**
Inizia la reproduzione VPS.



Il sistema VPS regola automaticamente l'orario di spegnimento.

Note

- Se i segnali VPS non vengono inviati, la funzione di spegnimento automatico VPS non si attiva. In questo caso, l'indicatore "E" appare sul display.
- Quando la registrazione finisce, il videoregistratore si spegne automaticamente (modo di attesa).
- Per disattivare la funzione VPS, premere i due tasti TIMER.

CONTROLLO DEI CANALI SATELLITE

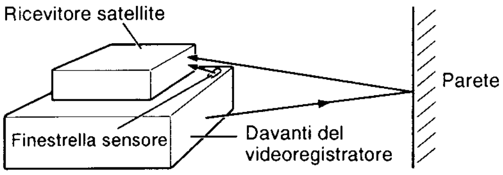
I canali satellite possono essere selezionati o cambiati con questo videoregistratore tramite il ricevitore satellite collegato, nello stesso modo dei canali TV.

Impostazione per il controllo dei canali satellite

È possibile selezionare i canali satellite usando questo videoregistratore. È anche possibile cambiare automaticamente i canali satellite a seconda delle regolazioni nel modo di registrazione di programmi a timer.

Importante

Collocare il ricevitore satellite sopra il videoregistratore come mostrato sotto.
Non bloccare la finestrella sensore.



I segnali ad infrarossi che vengono emessi dalla finestrella sensore e dal davanti del videoregistratore, rimbalzano su muri ed oggetti nella stanza e vengono ricevuti dal ricevitore satellite.
Il videoregistratore invia i segnali di comandi a distanza al ricevitore satellite anche durante la registrazione di programmi a timer.

Nota

Se il ricevitore satellite non può essere controllato correttamente perché i segnali ad infrarossi non riescono a ragguingerlo, cambiare la sua posizione sul videoregistratore in modo che esso possa ricevere i segnali a sufficienza.

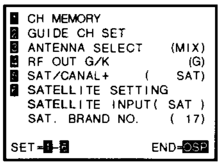
Preparativi

- Tenere acceso il ricevitore satellite collegato.
- Assicurarsi che il ricevitore satellite sia collegato correttamente al videoregistratore.
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". **1**

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

2 Premere **il tasto numerico 5** per selezionare "CH PRESET". **4**

⑤



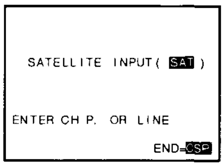
```
1 CH MEMORY
2 GUIDE CH SET
3 ANTENNA SELECT      (MIX)
4 RF OUT G/K            (G)
5 SAT/CANAL+      (     SAT)
7 SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.     ( 17)

SET=1-5             END=OSP
```

3 Premere **il tasto numerico 5** per regolare "SAT/PREMIERE" su "SAT". **4**

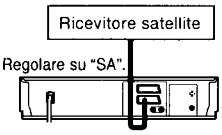
4 Premere **il tasto numerico 6** per selezionare "SATELLITE INPUT". **4**

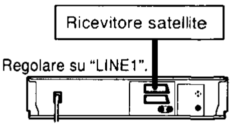
5 Selezionare il numero di posizione o il modo di ingresso usando il tasto **INPUT SELECT,** in base al tipo di collegamento del ricevitore satellite. **3**

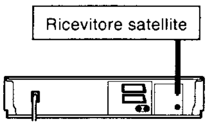
INPUT SELECT



```
SATELLITE INPUT( SAT )

ENTER CH P. OR LINE
                END=OSP
```





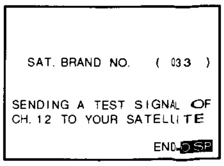


Immettere il numero di posizione selezionato per l'uscita satellite usando i tasti numerici.

6 Premere il tasto **OSP**. **23**

7 Premere **i tasti numerici** per immettere le tre cifre del codice di marca per il ricevitore satellite. **4**
Controllare la lista dei codici di marca.
Esempio: Per immettere il codice di marca 33.

⓪→③→③



```
SAT. BRAND NO.    ( 033 )

SENDING A TEST SIGNAL OF
CH. 12 TO YOUR SATELLITE
                 END=OSP
```

Quando si immette il codice di marca, il videoregistratore invia un segnale di prova al ricevitore satellite per verificare che il codice di marca sia stato immesso correttamente.
Il segnale regola il canale satellite su 12. Se il canale 12 è visualizzato sul ricevitore satellite vuol dire che il codice di marca è stato selezionato correttamente.
Una marca può avere vari codici di marca. Provarli uno dopo l'altro fino a che il canale visualizzato è 12.

8 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Controllo dei canali satellite

Selezione dei canali satellite con il telecomando del videoregistratore

1) Premere il tasto **SAT.CONT.** per fare apparire "SAT", "SA" sul display del videoregistratore. **33**
2) Selezionare il canale satellite desiderato usando **i tasti numerici**. **4** **21**
   Il modo d'impiego può variare a seconda del modello di ricevitore satellite.
   Controllare come funzionano sul proprio ricevitore satellite.

Esempio: Selezione del canale 3:	Selezione del canale 16:
• 0→3	• 1→6
• 0→3→ENTER	• 1→6→ENTER
• ENTER→3	• ENTER→ENTER→1→6

> **Importante**
> Alcuni ricevitori satellite non rispondono a tutte le operazioni sopra o possono non funzionare assolutamente con questo telecomando. In questo caso, controllare il ricevitore satellite con il suo telecomando.

Note
- A ciascuna pressione del tasto SAT.CONT., questa funzione viene attivata o disattivata.
- Per fare apparire un numero di posizione sul display del videoregistratore dopo avere disattivato questa funzione, premere il tasto INPUT SELECT.

Per cambiare automaticamente i canali satellite nel modo di registrazione di programmi a timer

Quando si sta programmando la registrazione a timer, premere il tasto **SAT.CONT.** per visualizzare SA sullo schermo e quindi immettere il canale satellite desiderato usando **i tasti numerici**. **33** **4**
Eseguire prima i punti **1)** e **2)** e controllare che i canali siano selezionati correttamente.

Nota
Tenere acceso il ricevitore satellite anche quando il videoregistratore è nel modo di registrazione di programmi a timer.

Tabella dei codici di marca ricevitore satellite

Marca	Codice di marca
TOSHIBA	17, 33
ALBA	1, 2, 9, 16, 17, 65, 66
ALDES	88
ALLSAT	9, 16, 23
AMSTRAD	3, 4, 5, 17, 55, 56, 76, 77, 89, 90, 91, 124
ARMSTRONG	17, 43
BEST/DISEXPRESS	26
BIG BROTHER	7, 8, 17
BT	17, 122, 123
BUSH	2, 9, 16, 17, 65, 66
CABLE STAR	17, 101, 102, 103, 104
CABLETIME	17, 101, 102, 103, 104
CAMBRIDGE	17, 122, 123
CHANNEL MASTER	2, 3, 10, 17
D2MAC DECODER	17, 72
DECSAT/C+SAT.	72
DRAKE	17, 45
ECHOSTAR	13, 14, 17, 92, 93, 94
FERGUSON	9, 15, 16, 17, 23, 38, 39, 59, 108
FUBA	49, 69, 70, 78, 96
GI	105, 106, 107, 108, 110
GRUNDIG	17, 19, 28, 71, 125
HIRSCH MANN	11, 19, 47, 48
HUTH	74
IMPULSE	105, 106, 107, 108, 110
ITT/NOKIA	17, 26, 27, 50, 51, 52
JERROLD	105, 106, 107, 108, 110
JVC	17, 122, 123
KATHREIN	12, 16, 20, 24, 29, 31, 46, 73, 97
LENCO	17, 49
MACOM	111
MASPRO	17, 20, 64, 67
MATSUI	17, 125
MIMTEC	21
MORGAN	43
NAGAI PALSAT	95, 96
NEC	17, 22, 57
NETWORK	9, 16, 17
NORDMENDE	17
OAK	112, 113, 114, 115
PACE	9, 16, 17, 23, 38
PANASONIC	17, 61
PHILIPS	16, 17, 24, 46, 73
REDIFFUSION	17, 25
REVOX	17, 21
SAKURA	17, 62, 63, 68
SALORA	17, 26, 27, 50, 51, 52
SAMSUNG	17, 36
SCHWAIGER	23, 43
SCIENTIFIC ATLANTA	116, 117, 118
SIEMENS	17, 23
SENTRA	10, 17
SONY	17, 30
STRONG	31
TATUNG/NIKKO	17, 32, 54, 58, 80, 81
TECHNISAT	40, 41, 92, 93
TELEDIREKT	23
TEXSCAN	17, 119, 120
THOMSON	7, 17, 39
TRISTAR	17, 31
UNIDEN	17, 67
VIDEOTRON	17, 105, 106, 107, 108, 109, 110, 121
VIDEOWAY	105, 106, 107, 108, 109, 110, 121
VISIOPASS	16, 24, 46, 73
VORTEC	36
WISI	17, 35, 37, 44, 93

- Alcune marche possiedono diversi codici di marca.
- Alcuni ricevitori satellite possono non essere controllabili con questo videoregistratore.

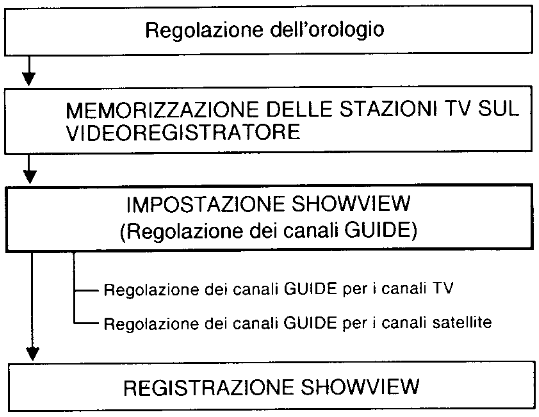
REGISTRAZIONE

IMPOSTAZIONE SHOWVIEW

SHOWVIEW è un sistema di registrazione a timer con una programmazione più facile che richiede solo l'immissione del numero SHOWVIEW assegnato al programma desiderato. Questa sezione spiega i preparativi necessari per l'esecuzione dii registrazioni SHOWVIEW.

Informazione

È possibile eseguire la registrazione a timer facilmente usando il sistema di programmazione SHOWVIEW di questo videoregistratore. Prima di eseguire una registrazione SHOWVIEW, è necessario impostare i canali GUIDE sul videoregistratore.



Regolazione dell'orologio

MEMORIZZAZIONE DELLE STAZIONI TV SUL VIDEOREGISTRATORE

IMPOSTAZIONE SHOWVIEW
(Regolazione dei canali GUIDE)

Regolazione dei canali GUIDE per i canali TV

Regolazione dei canali GUIDE per i canali satellite

REGISTRAZIONE SHOWVIEW

Tabella dei canali GUIDE

*: Numero di posizione sotto il quale la stazione televisiva è stata memorizzata sul videoregistratore.

Canali TV	Canali GUIDE	*	Canali satellite	Canali GUIDE	
ARD	001	ex. 1	SAT. 1	005	
ZDF	002	ex. 2	3 SAT	118	
WEST 3	017	ex. 3	EUROSPORT	107	
RTL	004	ex. 4			

Immettere il numero allocato a ciascuna stazione televisiva indicato sulle guide televisive.

Regolazione dei canali GUIDE per i canali TV

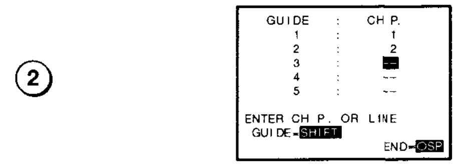
Preparativi

- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". **1**
- Selezionare correttamente il sistema video.

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

2 Premere **il tasto numerico 5** per selezionare "CH PRESET". **4**

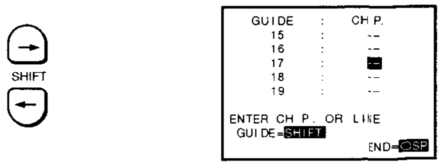
3 Premere **il tasto numerico 2** per selezionare "GUIDE CH SET". **4**



```
GUIDE   :   CH P.
  1     :     1
  2     :     2
  3     :    --
  4     :    --
  5     :    --

ENTER CH P. OR LINE
 GUIDE=SHIFT
              END=OSP
```

4 Premere i tasti **SHIFT** per selezionare un "GUIDE" seguendo la lista preparata a sinistra. **22**

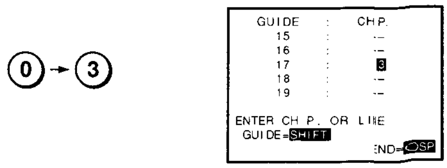
Esempio: Per regolare il canale GUIDE 017 per WEST 3.



```
GUIDE   :   CH P.
  15    :    --
  16    :    --
  17    :    --
  18    :    --
  19    :    --

ENTER CH P. OR LINE
 GUIDE=SHIFT
              END=OSP
```

5 Immettere i numeri di posizione (da 1 a 99) sui quali sono state memorizzate le stazioni televisive sul videoregistrare, nella colonna "CH P.".

Esempio: Se si è memorizzato WEST 3 sulla posizione 3, immettere 3 nella colonna "CH P." usando **i tasti numerici**. **4**



```
GUIDE   :   CH P.
  15    :    --
  16    :    --
  17    :     3
  18    :    --
  19    :    --

ENTER CH P. OR LINE
 GUIDE=SHIFT
              END=OSP
```

6 Per regolare i canali GUIDE per altri canali TV, eseguire i punti *4* e *5*.

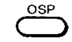
7 Premere due volte il tasto **OSP** per uscire da questo modo. **23**
La regolazione del canale GUIDE è completata.

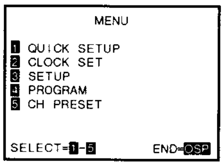
Regolazione dei canali GUIDE per i canali satellite (per usare il ricevitore satellite)

Questa regolazione è necesaria per eseguire una registazione SHOWVIEW di canali satellite via ricevitore satellite.

Esempio **Per regolare il canale GUIDE 107 per EUROSPORT.**

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**

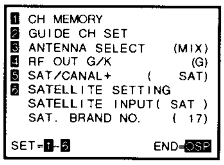




```
                MENU

1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET

SELECT=1-5              END=OSP
```

2 Premere **il tasto numerico 5** per selezionare “CH PRESET”. **4**

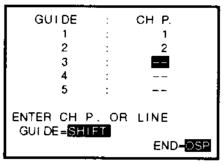
⑤



```
1 CH MEMORY
2 GUIDE CH SET
3 ANTENNA SELECT       (MIX)
4 RF OUT G/K             (G)
5 SAT/CANAL+        (    SAT)
6 SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.      ( 17)

SET=1-6                END=OSP
```

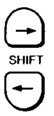
3 Premere **il tasto numerico 2** per selezionare “GUIDE CH SET”. **4**

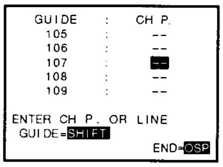
②



```
   GUIDE    :    CH P.
     1      :      1
     2      :      2
     3      :     --
     4      :     --
     5      :     --

ENTER CH P. OR LINE
 GUIDE=SHIFT
                 END=OSP
```

4 Far scorrere i numeri per collocare 107 nella posizione centrale della colonna “GUIDE” usando i tasti **SHIFT**. **22**





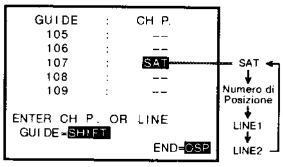
```
   GUIDE    :    CH P.
    105     :     --
    106     :     --
    107     :     --
    108     :     --
    109     :     --

ENTER CH P. OR LINE
 GUIDE=SHIFT
                 END=OSP
```

Fare riferimento alla tabella preparata.

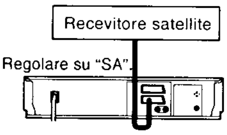
Canali satellite	Canali GUIDE	
SAT. 1	005	SAT / LINE1 / Cavo RF
3 SAT	118	SAT / LINE1 / Cavo RF
EUROSPORT	107	SAT / LINE1 / Cavo RF

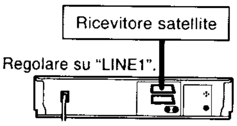
5 Regolare la colonna “CH P.” usando il tasto **INPUT SELECT** in base al tipo di collegamento tra il ricevitore satellite e il videoregistratore. **3**

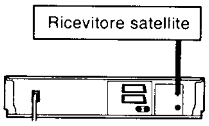
INPUT SELECT



```
   GUIDE    :    CH P.
    105     :     --
    106     :     --
    107     :    SAT
    108     :     --
    109     :     --

ENTER CH P. OR LINE
 GUIDE=SHIFT
                 END=OSP
```







Immettere il numero di posizione selezionato per l’uscita satellite usando i tasti numerici.

6 Per regolare i canali GUIDE per altri canali satellite, eseguire i punti *4* e *5*.

7 Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Ora è possibile eseguire registrazioni SHOWVIEW di canali satellite.

Regolazione dei canali GUIDE per il controllo dei canali satellite

Al punto *5*, immettere il numero del canale satellite desiderato nella colonna ”CH P.” premendo prima il tasto **SAT.CONT.** (viene visualizzato SA) e quindi **i tasti numerici.** **33** **4**

① → ⓪

Importante
Per usare questa funzione, eseguire i procedimenti di “CONTROLLO DEI CANALI SATELLITE”.

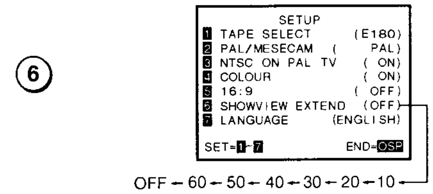
REGISTRAZIONE SHOWVIEW

Dopo aver eseguito l'impostazione SHOWVIEW, è possibile programmare facilmente la registrazione semplicemente immettendo il numero SHOWVIEW. I numeri sono pubblicati insieme alle liste di programmi TV di giornali, riviste, ecc.

Per prolungare la durata

Prima di eseguire la registrazione SHOWVIEW, prolungare la possibile durata della registrazione per consentire la registrazione dell'intero programma.
È possibile allungare la durata della registrazione in scatti di 10 minuti fino a 60 minuti.

1) Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**
2) Premere **il tasto numerico 3** per selezionare "SETUP". **4**
3) Premere ripetutamente **il tasto numerico 6** per prolungare la durata di quanto desiderato. **4**



```
            SETUP
1 TAPE SELECT        (E180)
2 PAL/MESECAM   (     PAL)
3 NTSC ON PAL TV     (  ON)
4 COLOUR             (  ON)
5 16:9               ( OFF)
6 SHOWVIEW EXTEND    (OFF)
7 LANGUAGE       (ENGLISH)

SET=1~7             END=OSP
```

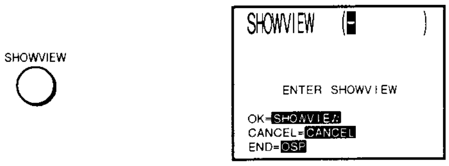
4) Premere due volte il tasto **OSP** per uscire da questo modo. **23**

Note

- La durata deve essere prolungata prima di iniziare il procedimento per la registrazione di SHOWVIEW. Non è possibile prolungare la durata di programmi registrati già memorizzati.
- Quando non si prolunga la durata per la registrazione SHOWVIEW, regolare su "OFF" allo schermo SETUP.

Registrazione SHOWVIEW

1 Premere il tasto **SHOWVIEW**. **5**
Il videoregistratore entra nel modo SHOWVIEW.

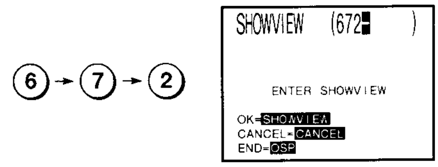


```
SHOWVIEW (▮        )

   ENTER SHOWVIEW

OK=SHOWVIEW
CANCEL=CANCEL
END=OSP
```

2 Immettere il numero SHOWVIEW.

Esempio: Per registrare un programma TV che inizia alle 21:30 del 30 agosto 1996 con il numero SHOWVIEW 672 (immaginario).

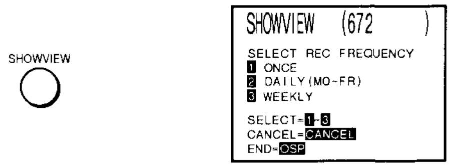
Premere **il tasti numerici 6, 7** e **2**. **4**
Controllare che il numero immesso sia correto.



```
SHOWVIEW (672▮     )

   ENTER SHOWVIEW

OK=SHOWVIEW
CANCEL=CANCEL
END=OSP
```

- Per correggere il numero, cancellare tutte le cifre premendo il tasto **CANCEL** e reimmettere il numero. **24**

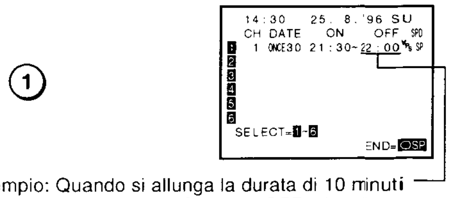
3 Premere il tasto **SHOWVIEW**. **5**
Lo schermo del televisore cambia come segue: (Alcuni programmi TV possono non necessitare della regolazione sullo schermo sotto e passare automaticamente all punto *5* quando viene immesso il numero SHOWVIEW del programma.)



```
SHOWVIEW (672       )
SELECT REC FREQUENCY
1 ONCE
2 DAILY(MO~FR)
3 WEEKLY
SELECT=1~3
CANCEL=CANCEL
END=OSP
```

ONCE:	Registrazione saltuaria.
DAILY (MO~FR):	Registrazione dei programmi TV sullo stesso canale TV alla stessa ora da lunedi a venerdi.
WEEKLY:	Registrazione dei programmi TV sullo stesso canale TV alla stessa ora lo stesso giorno ogni settimana.

4 Per selezionare "ONCE", per esempio, premere **il tasto numerico 1**. **4**
La programmazione "ONCE" viene regolata automaticamente.
Vengono visualizzati i dettagli di programma.



```
   14:30    25. 8.'96 SU
   CH DATE    ON     OFF SPD
1   1 ONCE30 21:30~22:00 VPS SP
2
3
4
5
6
 SELECT=1~6
                    END=OSP
```

Esempio: Quando si allunga la durata di 10 minuti sullo schermo SETUP, "OFF" visualizza "21:40".

5 Se la funzione VPS è attivata, controllare che "VPS" sia illuminato. **32**
Ad ogni pressione del tasto **VPS**, "VPS" si illumina o si spegne.

6 Per cambiare la velocità del nastro, premere il tasto **SP/LP**. **12**

Nota
Quando si attiva VPS al punto *5*, la velocità AUTO non può essere selezionata. Usare VPS o la velocità AUTO.

7 Premere il tasto **SHOWVIEW**. **5**
La regolazione del programma viene memorizzata.

8 Per immettere altri numeri SHOWVIEW, seguire i punti da *2* a *7*.

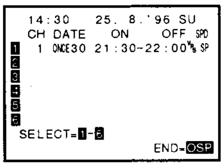
9 Premere quindi simultaneamente i due tasti **TIMER**. Il videoregistratore entra nel modo di attesa timer e l'indicatore ⏲ si illumina. **25**

Controllo dei programmi a timer SHOWVIEW

Prima che il videoregistratore entri nel modo di attesa timer (indicatore ⏲ non illuminato)

1) Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**
2) Premere **il tasto numerico 4** per selezionare "PROGRAM". **4**

④



```
14:30    25. 8.'96 SU
CH DATE    ON     OFF SPD
1  1 ONCE30 21:30-22:00⅓ SP
2
3
4
5
6
SELECT=1-6
                 END=OSP
```

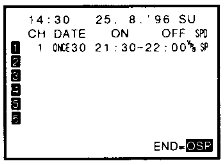
Controllare i dati programmati.

3) Premere il tasto **OSP** per uscire da questo modo. **23**

Durante la registrazione del programma a timer (indicatore ⏲ illuminato)

Premere il tasto **OSP** per fare apparire lo schermo di conferma. **23**

OSP



```
14:30    25. 8.'96 SU
CH DATE    ON     OFF SPD
1  1 ONCE30 21:30-22:00⅓ SP
2
3
4
5
6
                 END=OSP
```

Dopo circa 30 secondi, lo schermo scompare.

Cancellazione dei programmi a timer SHOWVIEW

1) Se il videoregistratore è regolato nel modo di attesa timer (indicatore ⏲ illuminato), premere i tasti **TIMER** per rilasciare il modo e premere il tasto **ON/STANDBY**. **25** **17**
2) Premere il tasto **OSP** per visualizzare lo schermo MENU. **23**
3) Premere **il tasto numerico** 4 per selezionare "PROGRAM". **4**
4) Selezionare il numero del programma che si residera cancellare usando **i tasti numerici**. **4**
5) Premere il tasto **CANCEL**. **24**
   I dati del programma selezionato vengono cancellati.
6) Premere il tasto **OSP**. **23**

Registrazione o riproduzione nel modo di attesa timer

Prima premere i due tasti **TIMER** per disattivare il modo di attesa timer e quindi premere il tasto **ON/STANDBY** per accendere il videoregistratore. **25** **17**
Il videoregistratore può ora essere usato.

- Ricordarsi di premere di nuovo i due tasti **TIMER** per riportare il videoregistratore allo stato di attesa dopo che si è finito di usarlo. **25**

Regolazione automatica della velocità

Se non si è sicuri se la lunghezza del nastro è sufficiente per la registrazione a timer nel modo SP, regolare la velocità di registrazione del nastro su "AUTO".
La registrazione inizia nel modo SP e il videoregistratore seleziona automaticamente la velocità del nastro per registrare il programma fino alla fine. Se la lunghezza del nastro non è sufficiente, la velocità del nastro passa automaticamente dal modo SP al modo LP.

Note

- È necessario selezionare prima la durata del nastro nello schermo SETUP.
- Quando è selezionato il modo LP e la lunghezza del nastro non è sufficiente per registrare il programma fino alla fine, il programma non può essere registrato completamente.
- L'immagine risulta distorta quando si riproduce la parte dove il modo di registrazione è passato dal modo SP al modo LP.

Messaggi di errore

Quando il messaggio "FULL (CLEAR PROG?)" appare sullo schermo del televisore durante la programmazione, significa che non possono essere immessi altri programmi. Se si desidera aggiungere un altro programma, cancellare un programma già esistente sullo schermo usando i tasti numerici.

Se viene immesso un numero SHOWVIEW inesistente, "INVALID CODE ENTERED" lampeggia sullo schermo indicando che la registrazione non può essere eseguita. Premere il tasto CANCEL per cancellare il numero SHOWVIEW ed immettere quello corretto.

Se il messaggio "CLASH" appare sullo schermo durante la programmazione, significa che sono stati immessi due programmi con lo stesso orario di inizio registrazione. È necessario eseguire una modifica. Su questo schermo, il numero dell'elemento lampeggiante significa che quell'elemento è stato immesso successivamente.

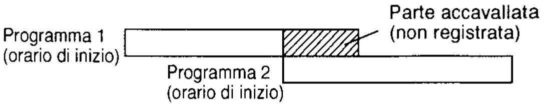
1) Immettere il numero del programma da correggere usando i tasti numerici. **4**
2) Correggere i dati del programma timer o cancellare i dati premendo il tasto CANCEL e quindi premere il tasto SHOWVIEW per passare al modo SHOWVIEW. **24** **5**

Se si verifica un'interruzione di corrente durante la registrazione di un programma a timer

- Se l'indicatore non è presente sul display del videoregistratore dopo un'interruzione di corrente, il contenuto della programmazione è stato cancellato. Reimpostare la registrazione a timer.
- Se l'interruzione di corrente è stata di breve durata, i due punti dell'orario attuale lampeggiano. Il contenuto della programmazione non ne ha risentito. Regolare di nuovo l'orologio.

Accavallamento dei programmi

Se due programmi timer sono accavallati, l'orario di inizio della registrazione del programma 2 ha la precedenza sull'orario di fine della registrazione del programma 1.

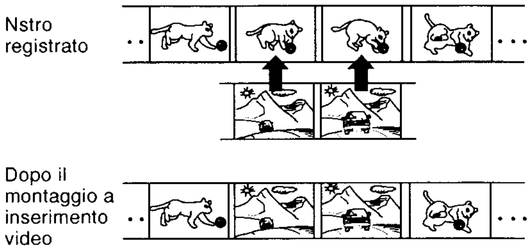

Parte accavallata (non registrata)
Programma 1 (orario di inizio)
Programma 2 (orario di inizio)

MONTAGGIO

È possibile creare video originali ad esempio inserendo varie scene e duplicando suoni.

Montaggio a inserimento video

È possibile sostituire facilmente una scena su un nastro registrato con un'altra scena introducendo immagini e suono da un apparecchio esterno.


Nstro registrato
Dopo il montaggio a inserimento video

Preparativi

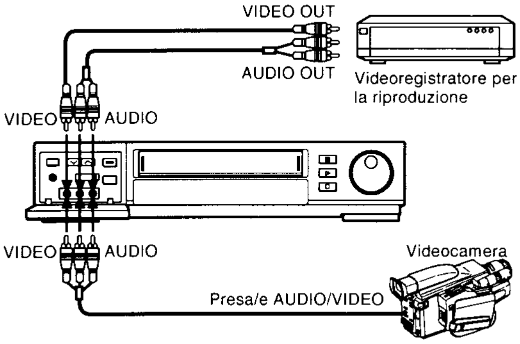
- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". **1**
- Selezionare il modo di ingresso in linea premendo il tasto INPUT SELECT in base al tipo di collegamento. **3**

INPUT SELECT

L1 ⇨ L2 ⇨ SA

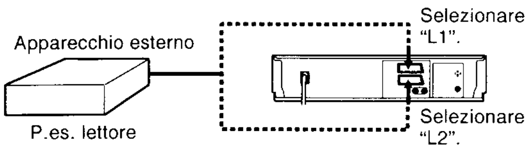
■ Collegamento ad un altro videoregistratore o apparecchio esterno usando le prese LINE IN 2 AUDIO/VIDEO (tipo fono)

Selezionare "L2".


VIDEO OUT
AUDIO OUT
Videoregistratore per la riproduzione
VIDEO
AUDIO
VIDEO
AUDIO
Videocamera
Presa/e AUDIO/VIDEO

■ Collegamento ad un apparecchio esterno usando la presa IN 1/OUT (SCART) o SAT./DECODER

Selezionare "L1" o "SA".


Apparecchio esterno
P.es. lettore
Selezionare "L1".
Selezionare "L2".

1 Cercare il punto di fine della parte da sostituire premendo il tasto **PLAY**. **27**

PLAY ►

2 Al punto di fine, mettere in pausa l'immagine premendo il tasto **PAUSE/STILL** e premere il tasto **COUNTER RESET** per regolare il contatore su "0H00M00S". **26** **18**

PAUSE/STILL → COUNTER RESET

VIDEO 0H00M00S

3 Riavvolgere il nastro fino al punto di inizio della parte da sostituire premendo il tasto **REW**. **9**

REW ◄◄

4 Al punto di inizio, riprodurre il nastro e premere il tasto **PAUSE/STILL** per mettere in pausa l'immagine. **26**

PAUSE/STILL

5 Premere il tasto **VIDEO INSERT**. **14**

VIDEO INSERT

6 Premere il tasto **PAUSE/STILL** per avviare il montaggio a inserimento video e avviare la riproduzione sull'apparecchio esterno. **26**
La registrazione si interrompe automaticamente quando il contatore raggiunge "0H00M00S".

PAUSE/STILL

Schermo del televisore

Quando si preme il tasto DISPLAY.

Note

- Sono prodotti disturbi di colore quando si riproducono le parti di inizio e fine dell'inserimento video.
- Possono essere prodotti disturbi di colore quando si riproduce la parte introdotta con il montaggio a inserimento video.

Duplicazione audio

È possibile registrare suoni introdotti da un microfono o un apparecchio esterno collegato alle prese LINE IN 2 sulla pista audio normale di un nastro registrato, senza cancellare le immagini o il suono sulla pista Hi-Fi stereo.
Per esempio, si può registrare una narrazione su un nastro registrato con una videocamera.

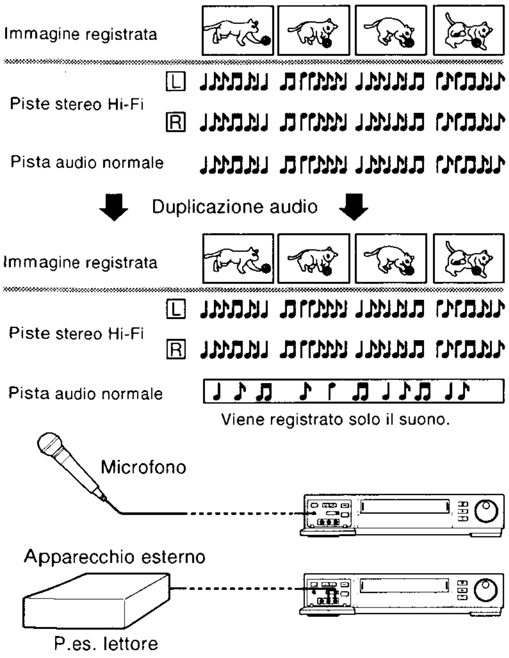
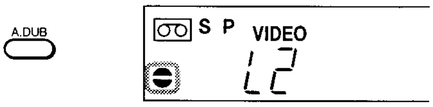


Immagine registrata
L
Piste stereo Hi-Fi
R
Pista audio normale
Duplicazione audio
Immagine registrata
L
Piste stereo Hi-Fi
R
Pista audio normale
Viene registrato solo il suono.
Microfono
Apparecchio esterno
P.es. lettore

Preparativi

- Per introdurre suoni da un microfono, collegare la spina del microfono alla presa MIC. H
- Per introdurre suoni da un apparecchio esterno, collegarlo alle prese LINE IN 2 (AUDIO) e premere il tasto INPUT SELECT per far apparire "L2" sul display del videoregistratore. (In questo caso, assicurarsi di scollegare il microfono dalla presa.) J 3

1. Inserire la cassetta sulla quale si desidera eseguire la duplicazione audio. E
2. Premere il tasto **PLAY** per avviare la riproduzione. 27
3. Premere il tasto **PAUSE/STILL** al punto in cui si desidera avviare la duplicazione audio. 26
4. Premere il tasto **A.DUB**. 10


A.DUB
S P
VIDEO
L2

Possono apparire dei sfarfallamenti sullo schermo. Questo non è indice di malfunzionamenti dell'apparecchio.

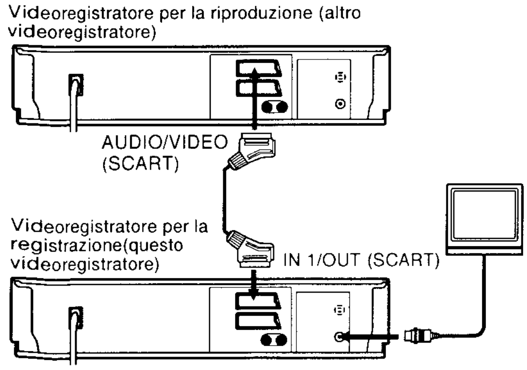
5. Premere il tasto **PAUSE/STILL** per avviare la duplicazione audio. 26
Parlare nel microfono o riprodurre il suono dell'apparecchio esterno.

Note

- Assicurarsi di scollegare il microfono dalla presa dopo l'uso.
- Per controllare il suono in fase di registrazione, premere il tasto A.SELECT per selezionare l'uscita del suono. 13

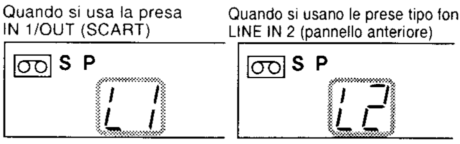
Duplicazione di nastri

Usando un altro videoregistratore o apparecchio esterno è possibile duplicare nastri.


Videoregistratore per la riproduzione (altro videoregistratore)
AUDIO/VIDEO (SCART)
Videoregistratore per la registrazione(questo videoregistratore)
IN 1/OUT (SCART)

> **Importante**
> È permesso registrare programmi TV solo nel caso in cui i diritti d'autore di terze parti e altri diritti non siano violati.

1. Premere il tasto **INPUT SELECT** in modo che il display del videoregistratore visualizzi "L1" o "L2" a seconda del collegamento eseguito. 3


Quando si usa la presa IN 1/OUT (SCART)
Quando si usano le prese tipo fono LINE IN 2 (pannello anteriore)
S P
L1
S P
L2

2. Premere il tasto **SP/LP** per selezionare la velocità di registrazione del nastro. 12
3. Riprodurre il nastro sul videoregistratore per la riproduzione e premere i tasti **REC** per avviare la registrazione su questo videoregistratore. 7 A
4. Premere il tasto **STOP** su ciascun videoregistratore quando la duplicazione è finita. 29 N

Note

- La qualità dell'immagine del nastro duplicato è leggermente inferiore alla qualità dell'immagine originale.
- Per controllare l'immagine in fase di registrazione premere il tasto TV/VIDEO per far apparire l'indicatore "VIDEO" sul display del videoregistratore e selezionare il canale video sul televisore. 2

REGOLAZIONI INIZIALI USANDO LA VISUALIZZAZIONE SULLO SCHERMO

Usando le visualizzazioni sullo schermo è possibile eseguire facilmente le regolazioni necessarie.

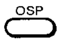
Schermo MENU/SETUP

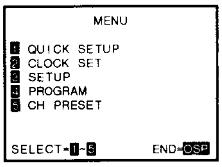
Preparativi

- Accendere il televisore e selezionare il modo di ingresso video o il canale video se si è eseguito il collegamento antenna.
- Regolare il selettore VTR/TV su "VTR". **1**

1 Premere il tasto **ON/STANDBY** per accendere il videoregistratore. **17** **D**

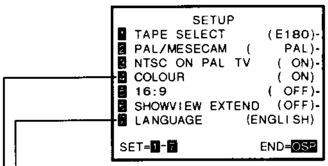
2 Premere il tasto **OSP**. **23**
Appare lo schermo MENU.
Per dettagli su ciascuna voce, fare riferimento alle pagine sotto indicate.





```
           MENU
1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET

SELECT=1-5          END=OSP
```

3 Premere **il tasto numerico 3**. **4**
Lo schermo passa allo schermo SETUP.
Per dettagli su ciascuna voce, fare riferimento alle pagine sotto indicate.

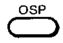


```
            SETUP
1 TAPE SELECT       (E180)-
2 PAL/MESECAM   (     PAL)-
3 NTSC ON PAL TV    (  ON)-
4 COLOUR            (  ON)
5 16:9              ( OFF)-
6 SHOWVIEW EXTEND   (OFF)-
7 LANGUAGE       (ENGLISH)

SET=1-7             END=OSP
```

Premere **il tasto numerico 7** per cambiare la lingua. **4**

Premere **il tasto numerico 4** per selezionare "OFF" se il programma TV o il nastro è in bianco e nero. **4**

4 Premere il tasto **OSP** due volte per tornare allo schermo TV normale. **23**



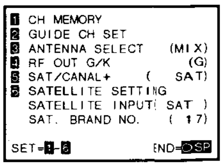
Impostazione rapida

Usare questo procedimento se "IMPOSTAZIONE AUTOMATICA" non ha funzionato correttamente o se si desidera cambiare le posizioni delle stazioni. Sono disponibili procedimenti manuali anche per la memorizzazione delle stazioni e la regolazione dell'orologio.

Preparativi

- Accendere il televisore e selezionare il modo di ingresso video o il canale video se si è eseguito il collegamento antenna.
- Regolare il selettore VTR/TV su "VTR". **1**
- Se si usa un ricevitore satellite o un decodificatore PREMIERE con questo videoregistratore, eseguire correttamente il collegamento e accenderlo. Seguire inoltre il procedimento qui sotto.
  1) Premere il tasto **OSP**. **23**
     Lo schermo MENU appare sul televisore.
  2) Premere **il tasto numerico 5** per selezionare "CH PRESET". **4**
  3) Regolare "SAT/CANAL+" su "SAT" o "CANAL+" premendo **il tasto numerico 5** . **4**

⑤



```
1 CH MEMORY
2 GUIDE CH SET
3 ANTENNA SELECT    (MIX)
4 RF OUT G/K          (G)
5 SAT/CANAL+   (     SAT)
6 SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.   ( 17)

SET=1-6           END=OSP
```

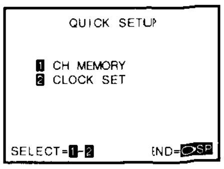
SAT: Per usare un ricevitore satellite collegatoa questo videoregistratore.
CANAL+: Per usare un decodificatore PREMIERE collegato a questo videoregistratore.

  4) Premere il tasto **OSP** due volte per tornare allo schermo TV normale. **23**

1 Premere il tasto **OSP**. **23**
Lo schermo MENU appare sul televisore.

2 Premere **il tasto numerico 1** per selezionare "QUICK SETUP". **4**

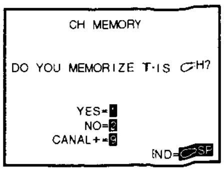
①



```
        QUICK SETUP

1 CH MEMORY
2 CLOCK SET

SELECT=1-2        END=OSP
```

3 Premere **il tasto numerico 1** per selezionare "CH MEMORY". **4**
Il videoregistratore inizia a cercare le stazioni TV. Quando viene trovata una stazione TV, appare il messaggio mostrato sotto.

①



```
         CH MEMORY

DO YOU MEMORIZE THIS CH?

         YES=1
          NO=2
      CANAL+=3
                  END=OSP
```

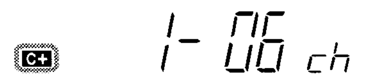
4 Premere **i tasti numerici** per selezionare se si desidera memorizzare l'attuale stazione nel videoregistratore. **4**

① : Per memorizzare la stazione attuale.

② : Per non memorizzare la stazione attuale.
Il videoregistratore localizza la stazione successiva e visualizza di nuovo il messaggio.

⑨ : Quando viene trovato un canale PREMIERE durante la ricerca.
L'indicatore C+ si illumina sul display del videoregistratore.

Esempio



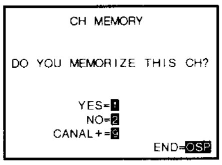
Note

- Se quando la ricerca è finita non appare un'immagine chiara sullo schermo del televisore, eseguire la regolazione precisa con i tasti INDEX. **6**
- Se si è selezionato "SAT" al punto **3)** a pagina 35, non è possibile memorizzare canali PREMIERE.

5 Premere **i tasti numerici** per immettere un numero di posizione (1-99) su cui memorizzare la stazione. **4**

Esempio
⓪→③

Assegnazione del numero di posizione 1 per ARD e 2 per ZDF.



```
CH MEMORY

DO YOU MEMORIZE THIS CH?

        YES=1
         NO=2
    CANAL+=9
              END=OSP
```

- Per cancellare il numero di posizione premere il tasto **CANCEL**. **24**

Riportare tutti i numeri di posizione memorizzati sul videoregistratore nella tabella (Tabella dei canali GUIDE) in modo da essere pronti per la registrazione SHOWVIEW.

6 Premere il tasto **OSP**. **23**
Il videoregistratore cerca la stazione successiva.
Eseguire i punti *4* e *5*.

Note

- L'impostazione rapida non funziona per stazioni SECAM D/K (trasmesse in Russia, Repubblica Ceca, Slovacchia, Ungheria, ecc.). Usare il procedimento manuale per la memorizzazione delle stazioni e la regolazione dell'orologio.
- Se l'orario non è regolato correttamente dopo questo procedimento, eseguire "Regolazione dell'orologio" in questa pagina.

Regolazione dell'orologio

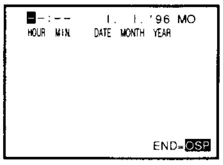
La voce da regolare lampeggia. È possibile cambiare la posizione premendo i tasti SHIFT. **22**

Esempio **Per regolare l'orologio sulle 14:30 del 25 agosto 1996.**

1 Premere il tasto **OSP**. **23**
Lo schermo MENU appare sul televisore.

2 Premere **il tasto numerico 2** per selezionare "CLOCK SET". **4**

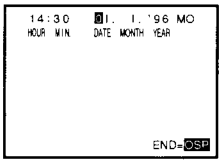
②



```
-- : --      1.  1. '96 MO
HOUR MIN    DATE MONTH YEAR

                      END=OSP
```

3 Regolare le ore e i minuti. (Ciclo di 24 ore) **4**

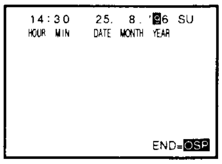
①→④→③→⓪



```
14:30       01.  1. '96 MO
HOUR MIN    DATE MONTH YEAR

                      END=OSP
```

4 Regolare il giorno e il mese. **4**

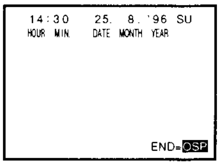
②→⑤→⓪→⑧



```
14:30       25.  8. '96 SU
HOUR MIN    DATE MONTH YEAR

                      END=OSP
```

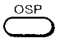
5 Regolare le ultime due cifre dell'anno. **4**

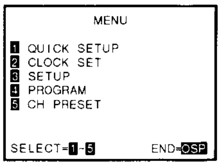
⑨→⑥



```
14:30       25.  8. '96 SU
HOUR MIN    DATE MONTH YEAR

                      END=OSP
```

6 Premere il tasto **OSP**. **23**
L'orologio inizia a funzionare.





```
            MENU

1 QUICK SETUP
2 CLOCK SET
3 SETUP
4 PROGRAM
5 CH PRESET

SELECT=1-5          END=OSP
```

7 Premere di nuovo il tasto **OSP** per uscire dallo schermo. **23**

5 2

RISPRISTINO

MEMORIZZAZIONE DELLE STAZIONI TV SUL VIDEOREGISTRATORE

Per vedere e registrare programmi TV con il videoregistratore è necessario memorizzare ciascuna stazione TV nel videoregistratore. Questo videoregistratore può memorizzare fino a 99 posizioni per stazioni TV.

Procedimento per la memorizzazione

Informazioni

Per ricevere trasmissioni televisive con questo videoregistratore è necessario selezionare correttamente il numero di gamma di sintonia in base al sistema televisivo della propria zona.
I numeri di canale TV indicati tra parentesi sono visualizzati sul display del videoregistratore.

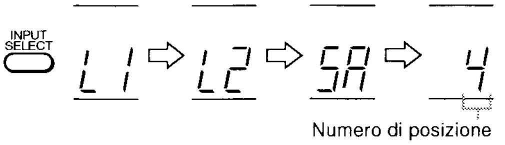
Sistema televisivo	Numero di gamma di sintonia	Banda	Numero di canale TV
PAL B/G (Germania, Italia, Svizzera, ecc.) SECAM B/G (Paesi del Medio e Vicino Oriente)	1	VHF	E2 – E12 (2 – 12) A – H, H1, H2 (13 – 20, 11, 12) R1 – R12 (81 – 92)
		UHF	E21 – E69 (21 – 69)
		CATV	X, Y, Z (71, 72, 73)
	2	CATV	S1 – S41 (1 – 41)
SECAM D/K (Russia, Repubblica Ceca, Slovacchia, Ungheria, ecc.)	3	VHF	R1 – R12 (1 – 12) A – H, H1, H2 (13 – 20, 11, 12) E2 – E12 (82 – 92)
		UHF	E21 – E69 (21 – 69)
		CATV	X, Y, Z (71, 72, 73)
	4	CATV	S1 –S41 (1 – 41)

Preparativi

- Selezionare il canale video o il modo di ingresso video sul televisore.
- Regolare il selettore VTR/TV su "VTR". 1
- Accendere il videoregistratore.
- Se si usa un ricevitore satellite o un decodificatore PREMIERE eseguire correttamente il collegamento e accenderlo.

Importante

Questo procedimento può essere eseguito solo quando il display del videoregistratore indica un numero di posizione sul videoregistratore. Se è visualizzato "L1", "L2" o "SA" premere il tasto INPUT SELECT in modo che appaia il numero di posizione. 3



Numero di posizione

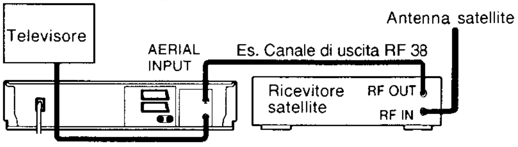
Esempio

Per memorizzare ARD del canale UHF 26 del sistema PAL B/G (trasmesso in Germania) sul numero di posizione 1 di questo videoregistratore.

L'assegnazione di stazioni TV alla memoria del videoregistratore deve essere come segue per la registrazione SHOWVIEW.

Esempio

ARD:	Numero di posizione 1
ZDF:	Numero di posizione 2
WEST 3:	Numero di posizione 3
RTL:	Numero di posizione 4
Satellite:	Numero di posizione 6, per esempio, se collegato solo tramite cavo antenna come mostrato sotto.



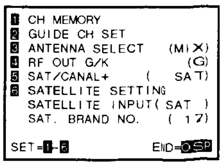
In questo caso selezionare il numero di posizione 6 al punto *5* e il canale 38 al punto *7*. Verificare che il televisore riceva la trasmissione satellite. Quando si guarda o si registra un programma satellite, selezionare il numero di posizione 6.

1 Premere il tasto **OSP** per visualizzare lo schermo MENU. 23

2 Premere **il tasto numerico 5** per selezionare "CH PRESET". 4

3 Regolare "SAT/CANAL+" su "SAT" o "CANAL+" premendo **il tasto numerico 5**. 4
Saltare questo punto se non si è collegato un ricevitore satellite o un decodificatore PREMIERE.

⑤

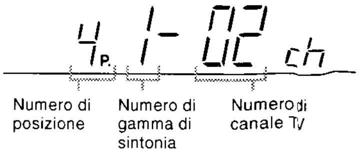

```
1 CH MEMORY
2 GUIDE CH SET
3 ANTENNA SELECT   (MIX)
4 RF OUT G/K         (G)
5 SAT/CANAL+    (   SAT)
6 SATELLITE SETTING
  SATELLITE INPUT( SAT )
  SAT. BRAND NO.  ( 17)

SET=1-6          END=OSP
```

SAT:	Per usare un ricevitore satellite collegato a questo videoregistratore.
CANAL+:	Per usare un decodificatore PREMIERE collegato a questo videoregistratore.

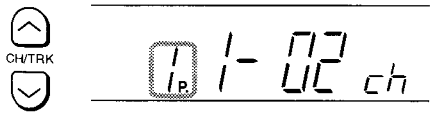
4 Premere **il tasto numerico 1** per selezionare "CH MEMORY". 4
Il videoregistratore è ora nel modo di sintonizzazione e la visualizzazione sullo schermo scompare.

Display del videoregistratore — Esempio

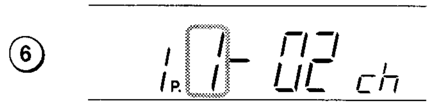
①



5 Premere il tasto **CH/TRK** per selezionare il numero di posizione 1. 20

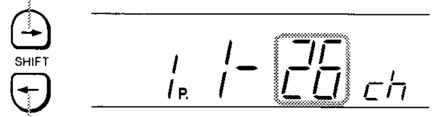

CH/TRK
1 P.
1- 02 ch

6 Premere ripetutamente **il tasto numerico 6** per selezionare il numero di gamma di sintonia 1 (PAL B/G). 4



7 Tenere premuto il tasto **SHIFT** per avviare la ricerca del canale 26. 22

Canali di numero superiore

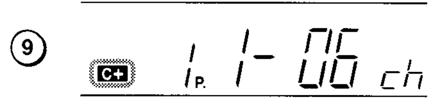

SHIFT
1 P.
1- 26 ch

Canali di numero inferiore

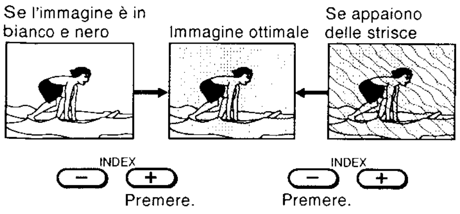
Se il segnale TV ricevuto non è il canale 26, tenere premuto di nuovo il tasto **SHIFT**.

- **Memorizzazione dei canali PREMIERE**
  Quando un canale PREMIERE viene localizzato durante la ricerca premere **il tasto numerico 9**. L'indicatore C+ si illumina sul display del videoregistratore.

Esempio



8 Se non appare un'immagine chiara sullo schermo del televisore quando la ricerca è finita, regolare con precisione usando i tasti **INDEX**. 6

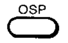

Se l'immagine è in bianco e nero
Immagine ottimale
Se appaiono delle strisce
INDEX
INDEX
Premere.
Premere.

9 Ripetere i punti da *5* a *8* per altre stazioni TV e per le stazioni satellite se il ricevitore satellite non è collegato tramite presa SCART. Selezionare i numeri di posizione al punto *5* come segue.

ZDF	Numero di posizione 2
WEST 3	Numero di posizione 3
RTL	Numero di posizione 4
Satellite	Numero di posizione 6

Riportare tutti i numeri di posizione memorizzati sul videoregistratore sulla in modo da essere pronti per la registrazione SHOWVIEW.

10 Premere il tasto **OSP**. 23
La sintonizzazione dei canali è ora completa.



Una volta memorizzate le stazioni è possibile selezionare i programmi TV con il numero di posizione su cui la relativa stazione TV è memorizzata.

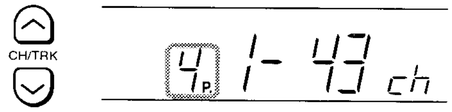
Salto dei canali

È possibile impedire l'uso di alcuni numeri di posizione.

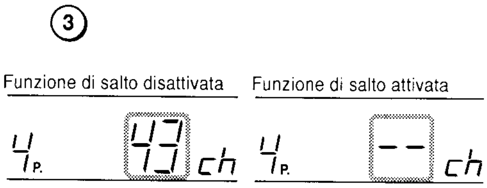
1) Regolare il videoregistratore in modo di sintonizzazione eseguendo i punti da *1* a *4* del procedimento di memorizzazione.

2) Selezionare il numero di posizione che si desidera saltare usando il tasto **CH/TRK**. 20

Esempio **Per saltare il numero di posizione 4.**


CH/TRK
4 P.
1- 43 ch

3) Premere **il tasto numerico 3**. 4
Le seguenti indicazioni appaiono sul display del videoregistratore con la funzione di salto attivata o disattivata.


3
Funzione di salto disattivata
Funzione di salto attivata
4 P.
43 ch
4 P.
-- ch

Se si preme di nuovo **il tasto numerico 3**, appare il numero di canale TV e la funzione di salto viene disattivata. 4

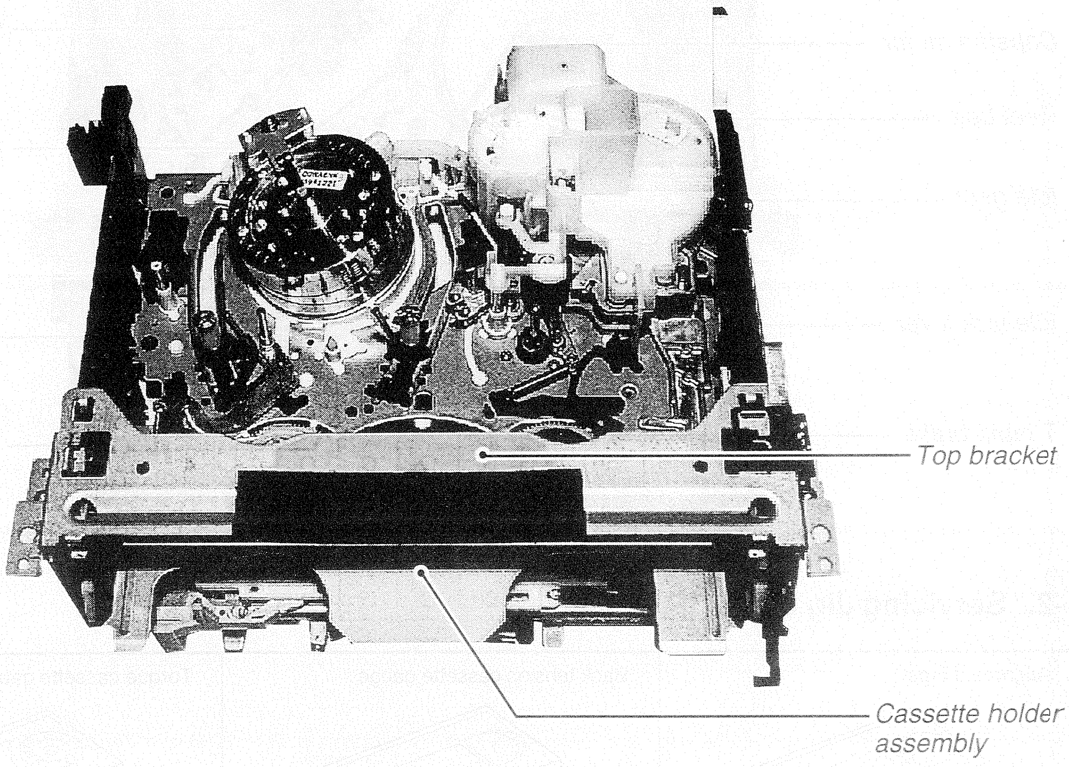
4) Premere il tasto **OSP** per uscire da questo modo. 23

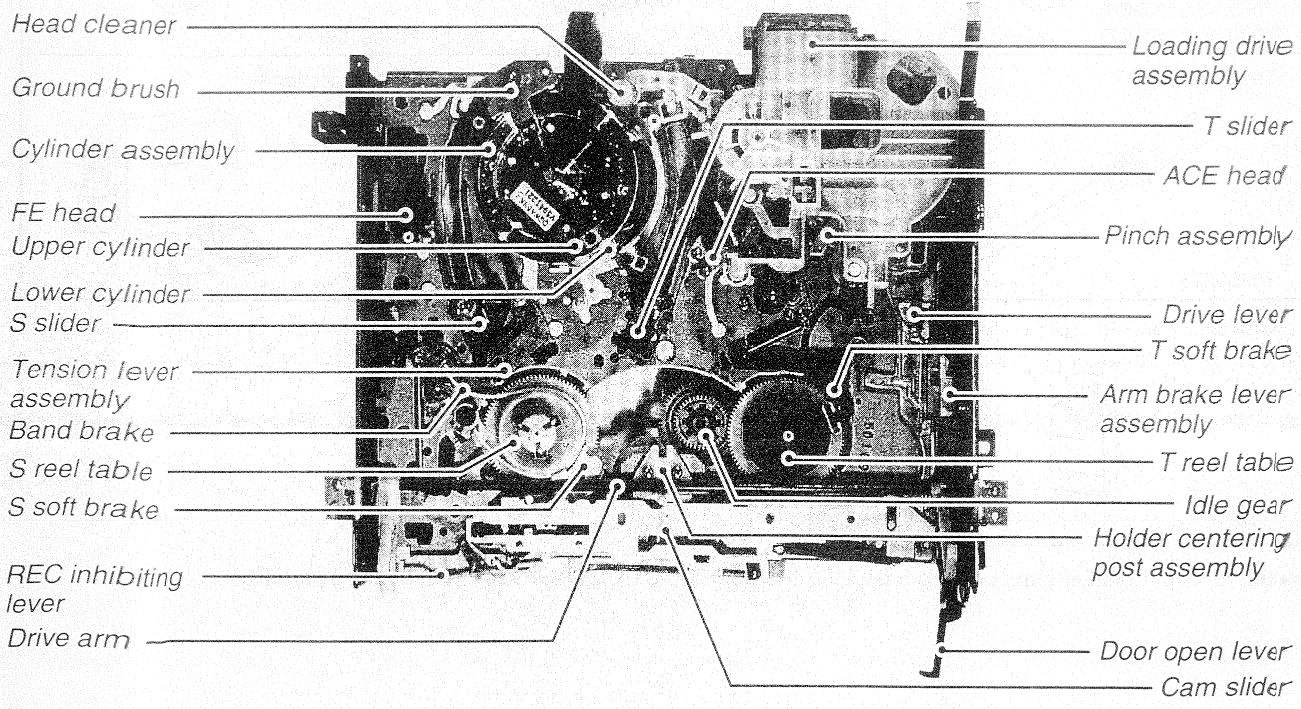
Per annullare il salto dei canali
Eseguire i punti da **1)** a **4)** sopra.

SECTION 2
ADJUSTMENT PROCEDURES

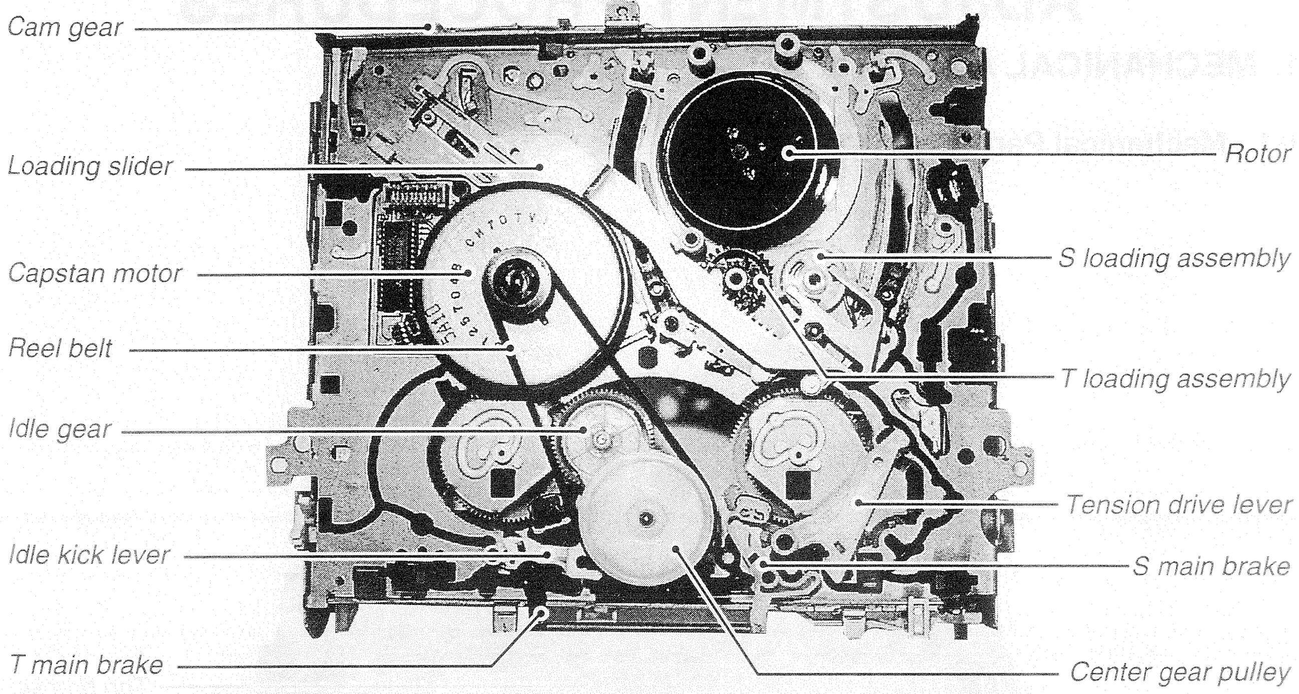
1. MECHANICAL ADJUSTMENT

1-1. Mechanical Parts Location


Top bracket
Cassette holder assembly

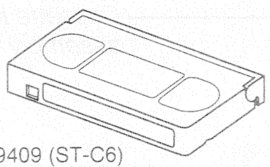
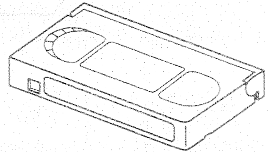
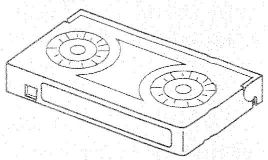
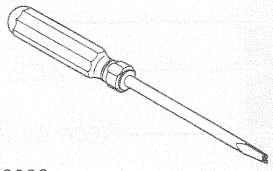
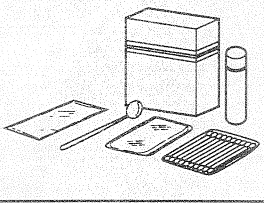
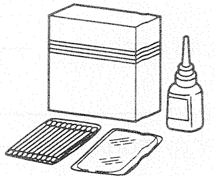

Head cleaner
Ground brush
Cylinder assembly
FE head
Upper cylinder
Lower cylinder
S slider
Tension lever assembly
Band brake
S reel table
S soft brake
REC inhibiting lever
Drive arm
Loading drive assembly
T slider
ACE head
Pinch assembly
Drive lever
T soft brake
Arm brake lever assembly
T reel table
Idle gear
Holder centering post assembly
Door open lever
Cam slider

Top View


Cam gear
Loading slider
Capstan motor
Reel belt
Idle gear
Idle kick lever
T main brake
Rotor
S loading assembly
T loading assembly
Tension drive lever
S main brake
Center gear pulley

Bottom View

1-2. Servicing Jig List

Alignment tape  70909409 (ST-C6) 70909410 (ST-C7)	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199
Taper nut driver  70909228	VTR cleaning kit 	VTR lubrication kit 
Grease 		

Note: Conventional alignment tapes ST-C1 (70909227) and ST-C3 (70909264) can be used partially.

1-3. Main Parts Servicing Time

- Part replacement time differs from servicing life time of each part.
- Following table is prepared based on a standard condition (room temperature, room humidity). The replacement time will be varied depending upon operation environment, using methods, operation duty, etc.
- Particularly, life of the upper cylinder depends upon operation conditions.

	Part Name	Service time (Operating Hours)										Note
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Tape Transport System	Tension post	△	△	△	△	△	△	△	△	△	△	• When cleaning, use a swab or piece of gauze soaked in alcohol.
	S/T slant guide post											
	Impedance roller *											
	No. 8 guide post											• After cleaning, cleaned parts are dried comepletely, and then load a video cassette.
	Capstan											
	No. 9 guide post											
	No. 3 guide post											
	S/T guide roller	△	△	△	O	O	O	O	O	O	O	• When lubricating, always use the specified oil.
	Upper cylinder	△	O	O	O	O	O	O	O	O	O	
	Slip ring assembly		O	O	O	O	O	O	O	O	O	• When the lubricating, apply one or two drops of oil after the cleaning with alcohol.
	FE head	△	△	△	O	O	O	O	O	O	O	
	ACE head	△	O	O	O	O	O	O	O	O	O	
	Pinch roller	△	O	O	O	O	O	O	O	O	O	
Tape Drive System	Capstan motor	△	△	△	△	△	O	O	O	O	O	
	Loading motor				O	O	O	O	O	O	O	
	Loading belt/ Reel belt	△	O	O	O	O	O	O	O	O	O	
	S reel table assembly		O	O	O	O	O	O	O	O	O	
	T reel table assembly		O	O	O	O	O	O	O	O	O	• Check the back tension.
	Idle gear assembly	△	O	O	O	O	O	O	O	O	O	
Other	Band brake assembly		O		O		O		O		O	

△ : Cleaning O : Check and replace if necessary

★ There are two types. One type has an impedance roller and another type has no impedance roller.

1-4. V3 Mechanism Check Method

If the abnormal condition is caused by the mechanism itself, analyze the cause according to the following procedures.

1-4-1. External Appearance Check

(1) Check whether there are foreign matters or not inside the VTR.

(2) Check whether the cylinder and the guides for tape transport system are contaminated.

1-4-2. Motor Sensor System Check

Check whether some abnormalities are found in the motor or the sensor system (including control circuits) according to the flow chart.

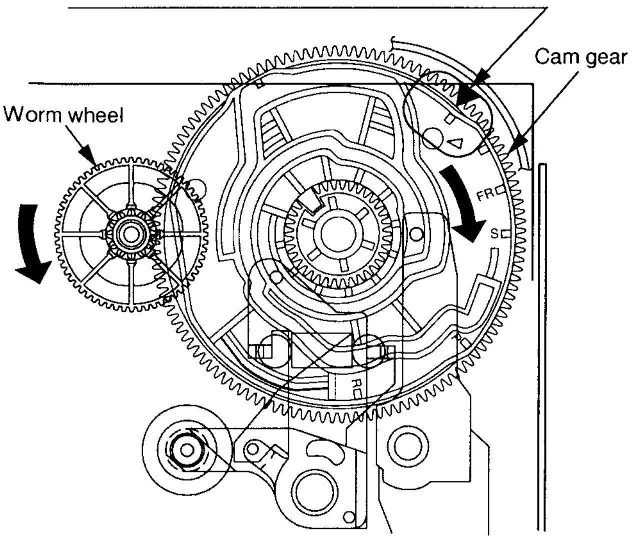
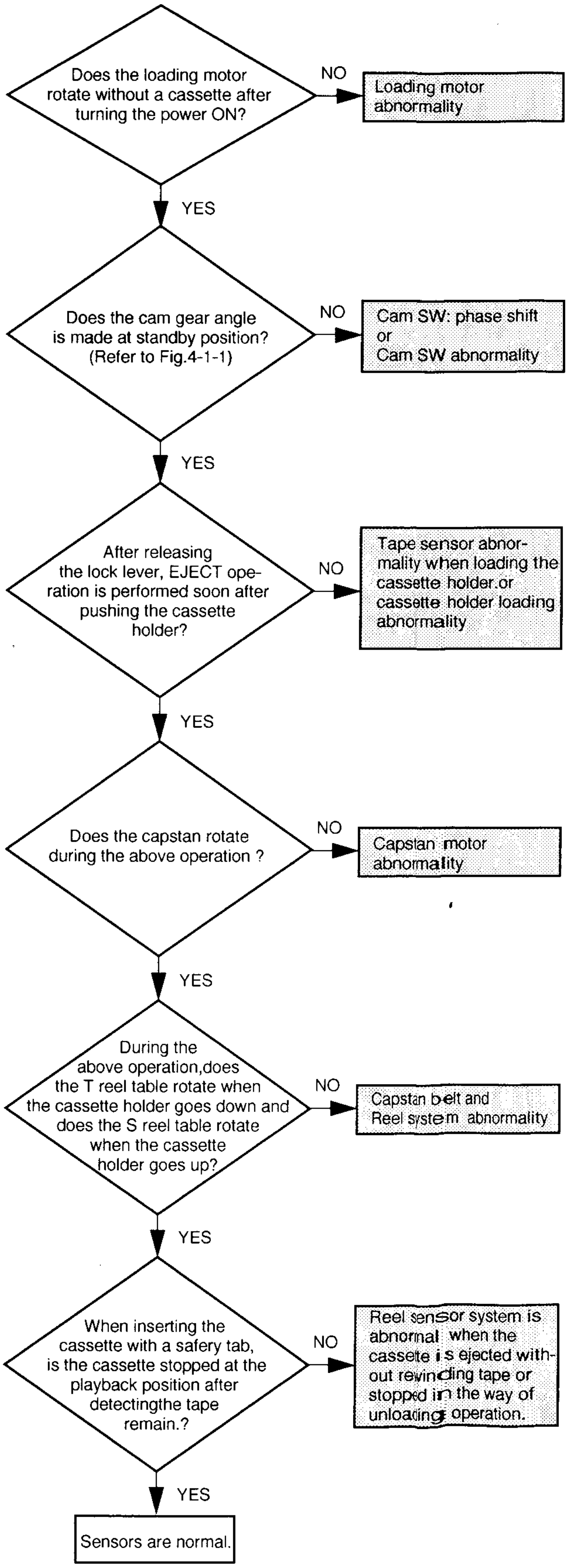

The clearance of ▲ is allowable if it is within 3mm.
Cam gear
Worm wheel
FR
SC
RC

Fig. 4-1-1


Does the loading motor rotate without a cassette after turning the power ON?
NO
Loading motor abnormality
YES
Does the cam gear angle is made at standby position? (Refer to Fig.4-1-1)
NO
Cam SW: phase shift or Cam SW abnormality
YES
After releasing the lock lever, EJECT operation is performed soon after pushing the cassette holder?
NO
Tape sensor abnormality when loading the cassette holder.or cassette holder loading abnormality
YES
Does the capstan rotate during the above operation ?
NO
Capstan motor abnormality
YES
During the above operation,does the T reel table rotate when the cassette holder goes down and does the S reel table rotate when the cassette holder goes up?
NO
Capstan belt and Reel system abnormality
YES
When inserting the cassette with a safery tab, is the cassette stopped at the playback position after detectingthe tape remain.?
NO
Reel sensor system is abnormal when the cassete is ejected without rewinding tape or stopped in the way of unloading operation.
YES
Sensors are normal.

1-4-3. Abnormality Analysis by Self-check Function

The unit used V3 mechanism has a self-check function. The self-check function works as a system which stored some abnormal condition. So, use this function to try to analyze the cause(s).

For the data display method and the content of the data, refer to the self-check function (described on page 2-47) in item 2-3.

Note:

- Abnormal data is displayed only when the first abnormal condition occurs, and is not displayed in the second time. Accordingly, the claim from customers and the actual data displayed may be different.
- The data is stored only when the power turns off after occurring the abnormality condition(s). The data is not stored when the unit operation is recovered by the microcomputer.
- After repairing, initialize the data by pressing the [COUNTER RESET] button while displaying the abnormal mode.

The typical examples in abnormal condition are shown below.

Table 4-3-1

A	B	C	Abnormal Condition	Check Item
06	01	09	Cylinder is stopped at playback position during playback the tape.	Check the cylinder motor. Check if the cylinder and tape transport guide are clogged.
02	01	0d	Cylinder is stopped at FF/REW position during rewind the tape.	
06	02	09	T reel sensor is abnormal at playback postion during playback the tape.	Check the capstan motor. Refer to the cases 2 and 3 describe on the table "Defective analyzing list".
03	03	07	S reel sensor is abnormal at playback position during REVIEW the tape.	
01	04	02	Cassette-in and out operation cannot be performed.	Refer to the case 1 described on the table "Defective analyzing list".
03	05	08	Mode shift cannot be performed during shifting to REVIEW.	

A: System control mode, B: Abnormality No., C: Mechanical position when an abnormality occurs.

1-4-4. Check by Defective Analyzing List

If the abnormality causes the mechanism abnormal condition, presume, confirm and treat the defective according to the "Defective analyzing list" in table 4-4-1.

(1) Manual mechanism operation (mode shift) method

Push in the lock lever R and L manually and turn the worm wheel counterclockwise as shown in Fig. 4-1-1. The cam gear is turned clockwise and the mode shifts to the direction where the loading operation can be performed. So, check the mechanism condition in the defective mechanism position when the abnormality occurs.

(2) Defective parts replacement

When a defective occurs due to the defective part(s) and the part(s) is replaced, take care the following items.

- Especially as for the mechanical parts requiring the phase alignment, take care of the part replacement **E.g.**. Assembling mode, phase alignment mark and etc.
- As for the part(s) requiring lubricant such as a specified amount of oil or grease, apply grease or oil according to the instructions and do not stick grease or oil to the portions without allowing to stick it (especially in removal and assembly).

(3) Check after treating the defective

After replacing a defective part and/or aligning a part, first check the mechanism operation manually and confirm that no problem occurs, and then mount the mechanical deck, turn the power ON and check the mechanism operation.

Note:

- After replacing the defective parts according to the procedure of the treatment method for the "damage and phase shift of mechanical part", check the operation of the mechanism again, since the same(or similar) defective problem may occur due to other serious cause (in mechanism or electrical circuit) when performing the actual total check with turning the power on.

Table 4-4-1 Defective Analyzing List

Case	Defective Phenomenon (Main Items)	Presumed Cause (Main Cause)	Check Method
1	Power does not turn on. Loading operation is defective. Mode shift operation is defective.	<General> Mechanical stops due to mechanical phase unmatching.	Check mode shift "Cassette out FF/REW position" can be performed when turning worm wheel.
	Loading operation is not performed.	Loading motor does not rotate. (Loading motor is defective or circuit is defective.)	Check loading motor whether it turns by the outer power supply (12.5V).
	Unloading operation is not performed.	S reel does not wind the tape.	Refer to case 3 in this table.
2	Playback operation is not performed. Playback operation is defective.	<General> Main brake is not released. (ON) T soft brake is not released. (ON) Idoler does not swing. Pinch does not press.	Check mechanical position.
		Capstan motor does not rotate. (Capstan motor is defective or circuit is defective.)	Check capstan motor.
	Playback picture does not appear. Video recording can not be performed.	<In case of no mechanical problem> Cylinder is defective. (Circuit is defective.)	Check cylinder assembly.
3	Playback interruption. Detective phenomenon during playback. Recording interruption.	Reel rotation detection is defective. (Sensor is defective. Circuit is defective.)	Check sensor output.
		Idler does not swing.	Check mechanical position.
		Reel belt is removed.	Check the reel belt is removed or not.
4	FF operation is not performed. FF operation is defective. REW operation is not performed. REW operation is defective. Others: REV/FF is not performed. Others: REV/FF is defective.	Main brake is not released. (ON) T soft brake is not released. (ON) Idler does not swing. Pinch is not released.	Check mechanical position.
		Capstan motor does not rotate. (Capstan motor is defective or circuit is defective.)	Check capstan motor.
5	REVIEW is not performed.	Main brake is not released. (ON) T soft brake is not actuated . Idler does not turn. Pinch does not press.	Check mechanical position.
		Capstan motor does not rotate. (Capstan motor is defective or circuit is defective.)	Check capstan motor.
6	Slot-in is not performed. Cassette can not be inserted.	<General> When the F/L is mounted on the mechanical deck,the position is not correct.	Check mechanical position.
7	Capstan servo does not work. Capstan servo is uneven. Tape speed is fast. Tape speed is slow. Tape speed is uneven. FG pulse is not output.	Capstan motor is defective.	Check capstan motor.
		ACE head control output is defective. (Circuit is defective.)	Check ACE head. Check CTL output.
8	Audio output does not come out. Audio output is small. Audio output variation is large. Audio output is uneven. Audio distortion. Audio noise. Others: Audio is defective.	ACE head is defective.	Check ACE head. Check CTL output.
		Tape transport adjustment is not defective.	Perform tape transport adjustment again after confirming tape transport condition.
		Hi-Fi head (cylinder) is defective. (Circuit is defective.)	Check cylinder. Check whether B+14V is supplied.

Treatment: If the mechanical is found out to be defective according to the procedures described above, perform the following treatment.
- Misassembling, mechanical phase mismatch ....Repair correctly.
- Parts defect, parts damage....................................Replace parts.

If the mechanical is found out not to be defective according to the procedures above, check the circuit(s).

1-5. Mechanical Deck Removal and Mounting

1-5-1. Mechanical Deck Removal

1. Remove three screws (2) mounting the top cover (1) and unlock two hooks at both left and right of the rear side, then remove the top cover sliding backward and lifting upward.
2. Remove left and right insulators. Insulators (A) can be remove by unfastening the hook of the chassis inserting a bar into the hole (B) located on the bottom, and by sliding it to the arrow mark direction.

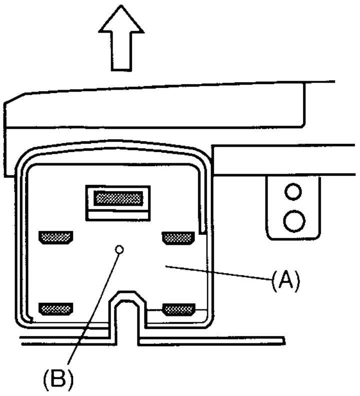


Fig. 5-1-1

3. Remove the connector (4) (KDB unit side) of the JSB unit, and remove the front panel (3).
4. Remove the FFC (7) connecting between main unit (8) and KDB unit (5), lead wires (9) and (10) connecting between terminal unit (12) and FCB unit (6), lead wire (11) connecting between main unit (8) and FCB unit (6). Remove lead wire (13) between a mechanical deck (14) and FCB unit (6) by loosening screw (15).

Note:

In this case, remove FFC (7) on KDB unit (5) side, lead wire (9) on FCB unit (6) side and lead wire (13) on mechanical deck (14) side.

5. Remove two screws (17) and power unit (16).
6. Remove a screw (18) securing the mechanical deck (14).

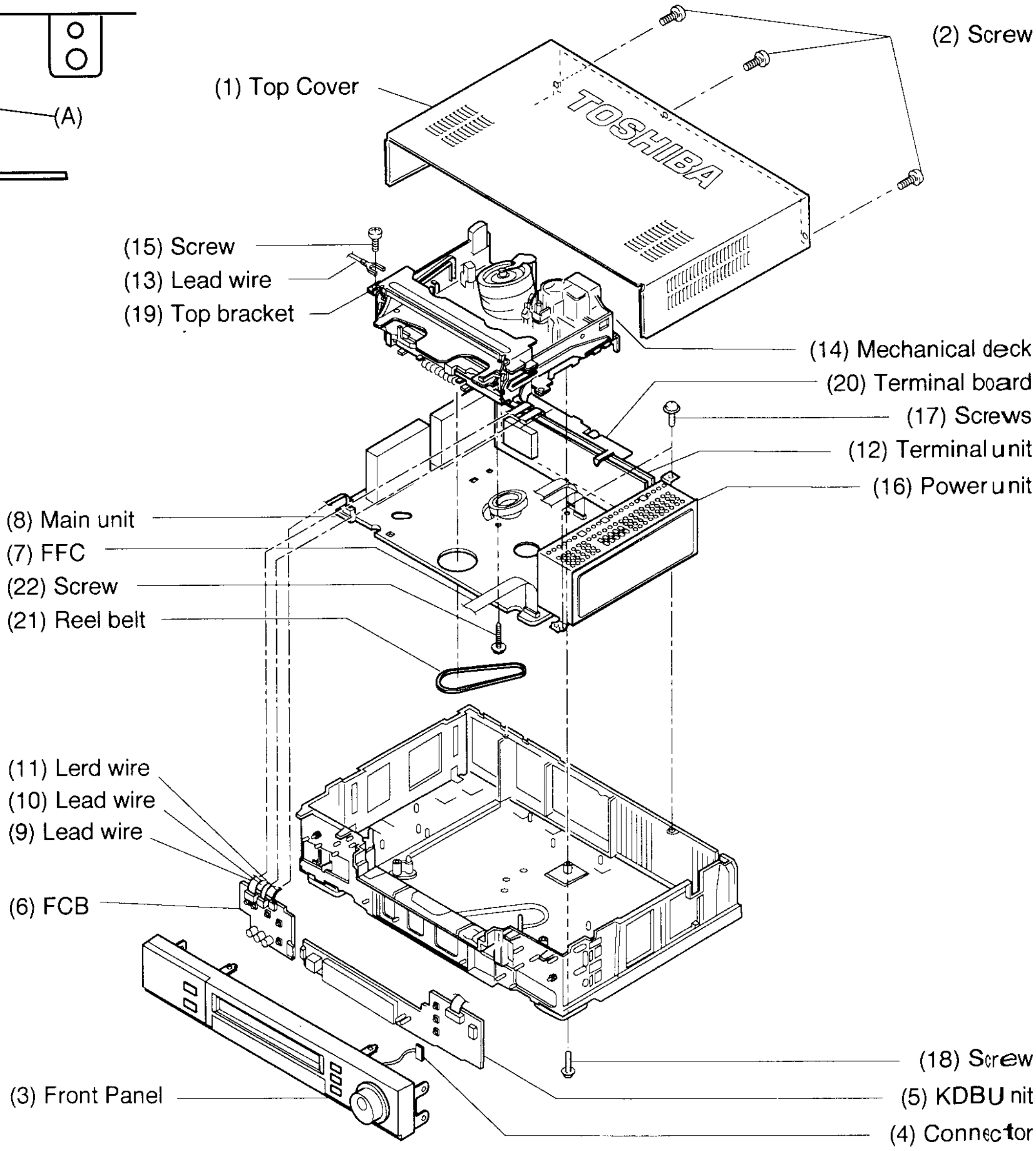

(2) Screw
(1) Top Cover
TOSHIBA
(15) Screw
(13) Lead wire
(19) Top bracket
(14) Mechanical deck
(20) Terminal board
(17) Screws
(12) Terminal unit
(16) Power unit
(8) Main unit
(7) FFC
(22) Screw
(21) Reel belt
(11) Lerd wire
(10) Lead wire
(9) Lead wire
(6) FCB
(3) Front Panel
(18) Screw
(5) KDB Unit
(4) Connector

Fig. 5-1-2

7. Undo the hook of the Terminal board (20) by pressing it and lift it up.

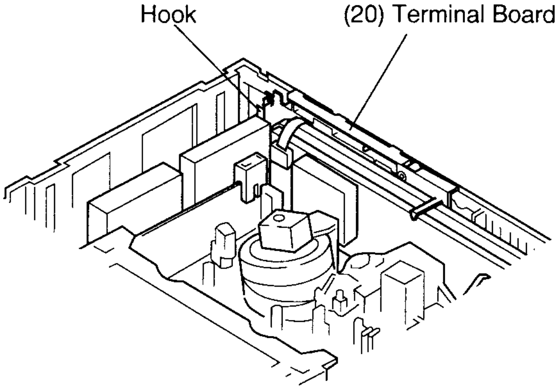


Fig. 5-1-3

8. Remove the mechanical deck (14) with main unit (8) from the chassis lifting its rear side slightly and pulling it upward.

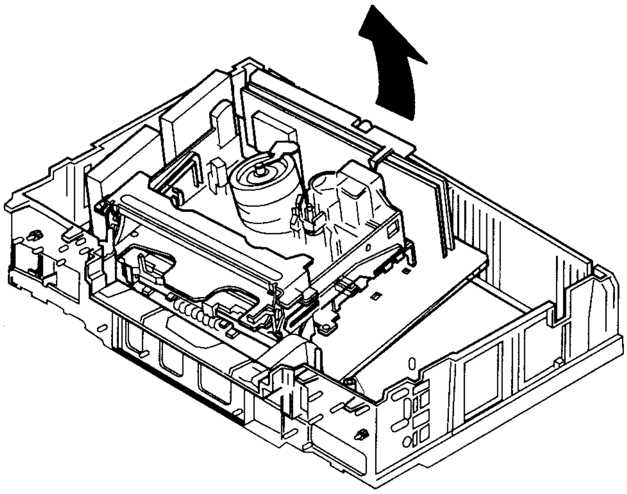


Fig. 5-1-4

Note:

When pulling the top bracket upward, take care not to deform the reinforcement plate located below the F/L assembly.

9. Remove the lead wire connecting between the mechanical deck (14) and the main unit (8).
10. Turn over the mechanical deck (14).
11. Remove the reel belt (21) and one screw (22).
12. Remove four claws securing the mechanical deck (14) and the main unit (8), and then remove the main unit (8) pulling upward.

1-5-2. Mechanical Deck Mounting

1. Turn over the mechanical deck and lower the main unit vertically adjusting the tape end sensor and etc. to the holes.

Note:

- Adjust the rotor of the cylinder motor and the stator of the main unit,and then lower the main unit further more till four claws catch the mechanical deck completely.
- Take care not to damage the rotor and the stator.
- When locking the claw of the front right side to the main unit, turn the REC inhibit lever so as not to damage the switch.

2. Mount the mechanical deck on the chassis in reverse order of removal.

Note:

When mounting the front panel, mount it with its door fully open.

1-5-3. Confirmation of Each Operation Mode without Cassette

1. Shut out the light to the start/end sensor.
2. Release the both sides of the lock lever and make a slot-in condition.
3. Turn the reel table manually located on the opposite side of the rotating reel table.
4. In this condition, confirmation of each operation mode can be performed.

Note:

When turning the opposite side reel table of the rotating reel table manually in playback, FF/REW mode, and sending no reel pulse, the auto eject or power off function is performed.

1-6. Main Parts Replacement

1-6-1. Top Bracket Replacement

1. Remove two securing screws (2) on the top bracket (1).
2. Remove the top bracket (1) lifting in the direction shown by the arrow.

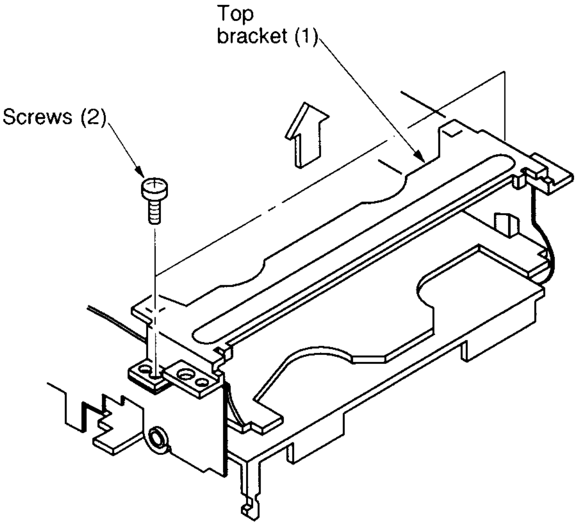

Top bracket (1)
Screws (2)

Fig. 6-1-1

3. When mounting the top bracket (1), move the tip of the grip lever (3) on the cassette holder assembly to the inclined portion of a trapezoidal cam, and then mount the top bracket (1).

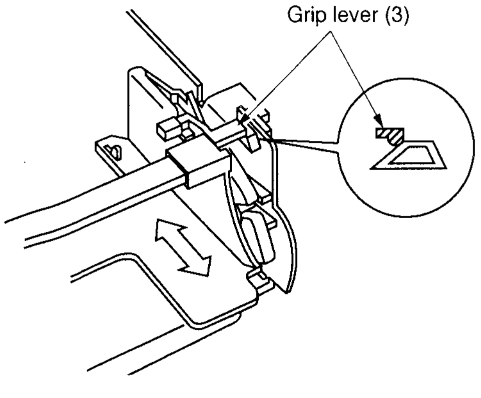

Grip lever (3)

Fig. 6-1-2

Note:

- After remounting the top bracket (1), move the cassette holder forward and backward, and then confirm the claws of the lock lever (5) catch completely the both left and right sides of the stopper section (4) at the top bracket (1).

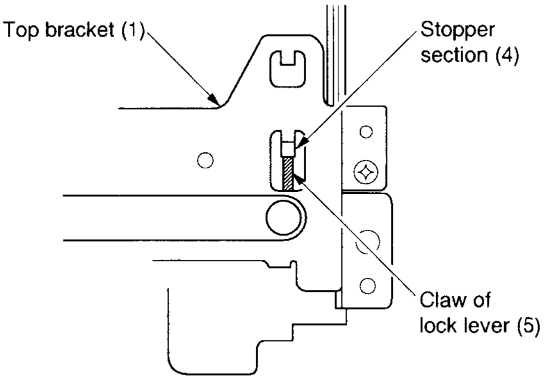

Top bracket (1)
Stopper section (4)
Claw of lock lever (5)

Fig. 6-1-3

1-6-2. Cassette Holder Assembly Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. The cassette holder assembly (1) is guided along the guide grooves (2) with both left and right bosses of the cassette holder assembly (1). So first remove each side boss (3) on both left and right sides of cassette holder assembly (1) from the guide groove (2).
3. When the cassette holder assembly (1) is set at the EJECT position, the boss is located at (a), so move the boss from (a) to (b) and remove the bosses on both left and right sides simultaneously.

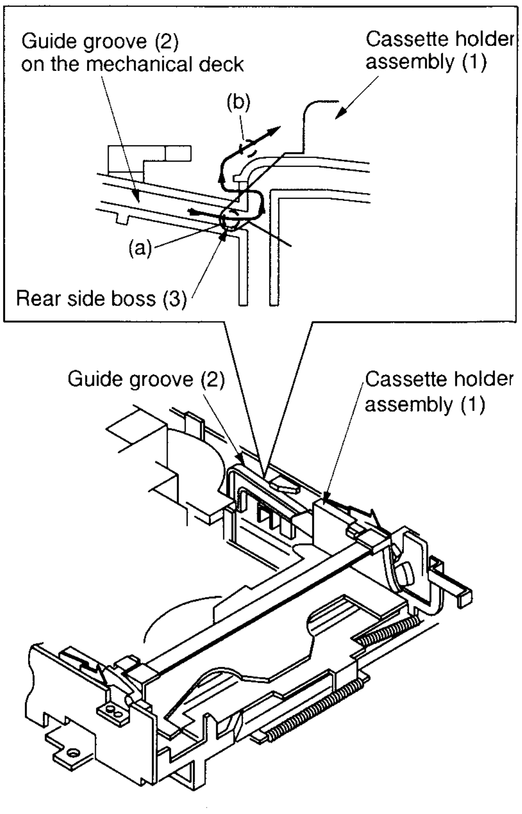

Guide groove (2)
on the mechanical deck
Cassette holder assembly (1)
(b)
(a)
Rear side boss (3)
Guide groove (2)
Cassette holder assembly (1)

Fig. 6-2-1

Note:

The grip lever (4) on the cassette holder assembly (1) may catch the trapezoidal cam on the mechanical deck (2), so perform the work lifting the grip lever in the direction shown by the arrow.

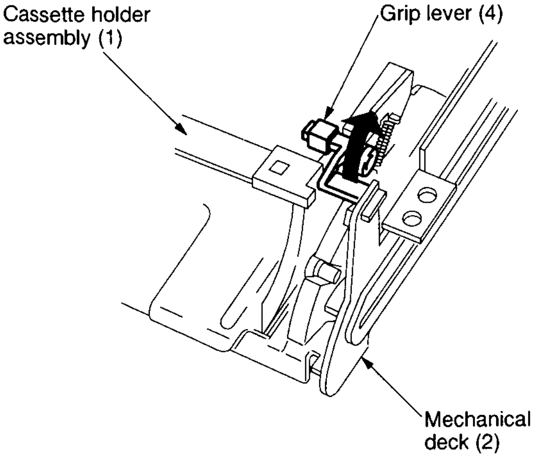

Cassette holder assembly (1)
Grip lever (4)
Mechanical deck (2)

Fig. 6-2-2

4. After removing the front side bosses (5) on both left and right sides, remove the cassette holder assembly (1) pulling to the front side.
5. When mounting the cassette holder assembly (1), insert the front side bosses (5) to the U shaped groove of the drive arm (6) and the guide groove (2) on the mechanical deck lifting the rear side of the cassette holder assembly (1).

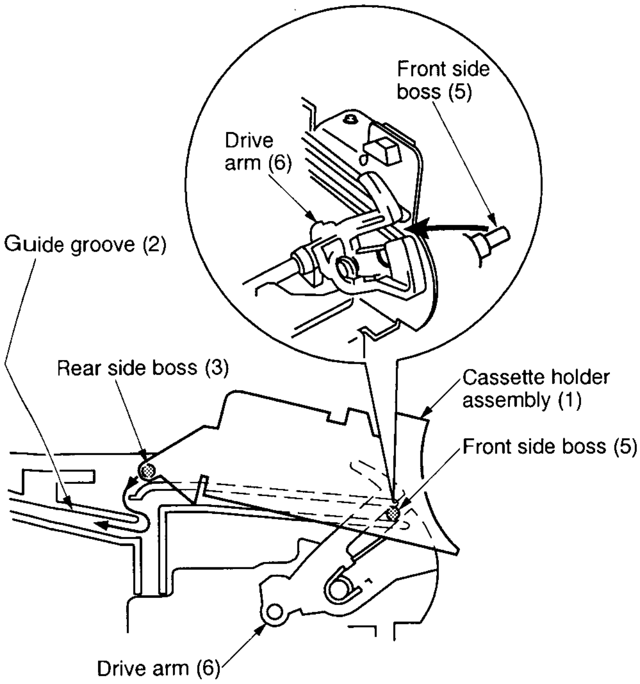

Front side boss (5)
Drive arm (6)
Guide groove (2)
Rear side boss (3)
Cassette holder assembly (1)
Front side boss (5)
Drive arm (6)

Fig. 6-2-3

6. When mounting the rear side bosses (3), perform the reverse order of removal.

1-6-3. Door Open Lever Replacement

1. Release the lock lever (2) on the cassette holder assembly (1) pressing in the direction shown by the arrow.

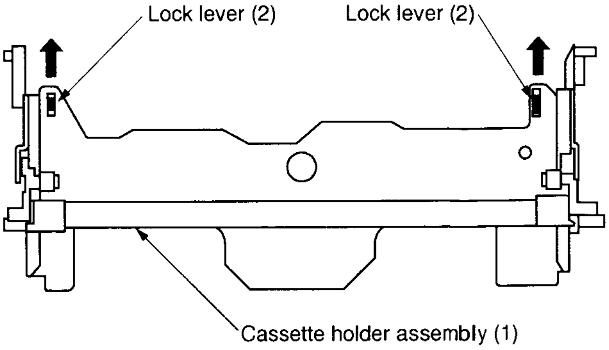

Lock lever (2)
Lock lever (2)
Cassette holder assembly (1)

Fig. 6-3-1

2. Move the cassette holder assembly (1) slightly to the rear side.
3. Remove the claws (A) and (B) on the door open lever (3) from the mechanical deck (4).
4. Match the boss on a new door open lever (3) and the hole (C) on the mechanical deck, and then insert the claws (B) first and then (A) to the mechanical deck (4).

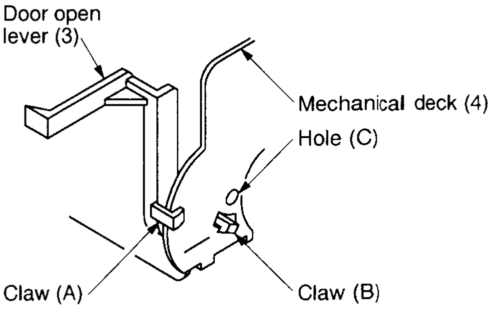

Door open lever (3)
Mechanical deck (4)
Hole (C)
Claw (A)
Claw (B)

Fig. 6-3-2

5. Remount the cassette holder assembly to the position as it was.

1-6-4. Drive Lever Gear Replacement

1. Make the cassette holder assembly to the slot-out (EJECT) position.

Note:

- In this condition, both mark holes on the F/L drive slider (1) and the mechanical deck fit with each other, also the hole of the boss on the drive lever gear (2), the center of the gear tooth and the marking line are in line.

2. Move the claw of the drive arm (3) to the direction of the arrow (A) and remove the drive lever gear (2) upward.

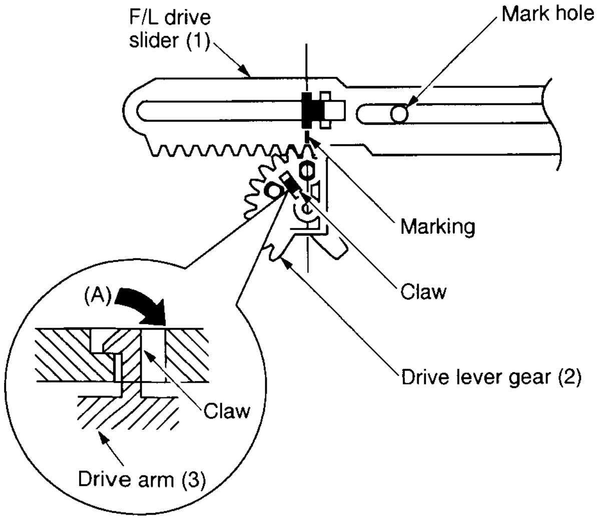

F/L drive slider (1)
Mark hole
Marking
Claw
Drive lever gear (2)
(A)
Claw
Drive arm (3)

Fig. 6-4-1

3. When remounting the drive lever gear (2), take care of the phase position (refer to the note described above.) and mount in the reverse order of removal.

1-6-5. Drive Arm Assembly Replacement

1. Remove the top bracket assembly. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the door open lever. (Refer to item "1-6-3. Door Open Lever Replacement.")
4. Remove the drive lever gear. (Refer to item "1-6-4. Drive Lever Gear Replacement".)
5. Pull the REC-inhibiting lever slightly to the front side, turn the drive arm assembly (1) to the front side and push it in the direction shown by the arrow. Remove the left side boss (2) on the drive arm assembly (1) from the cutout of the guide groove on the mechanical deck (3).
6. Remount the drive arm assembly (1) in the reverse order of removal.

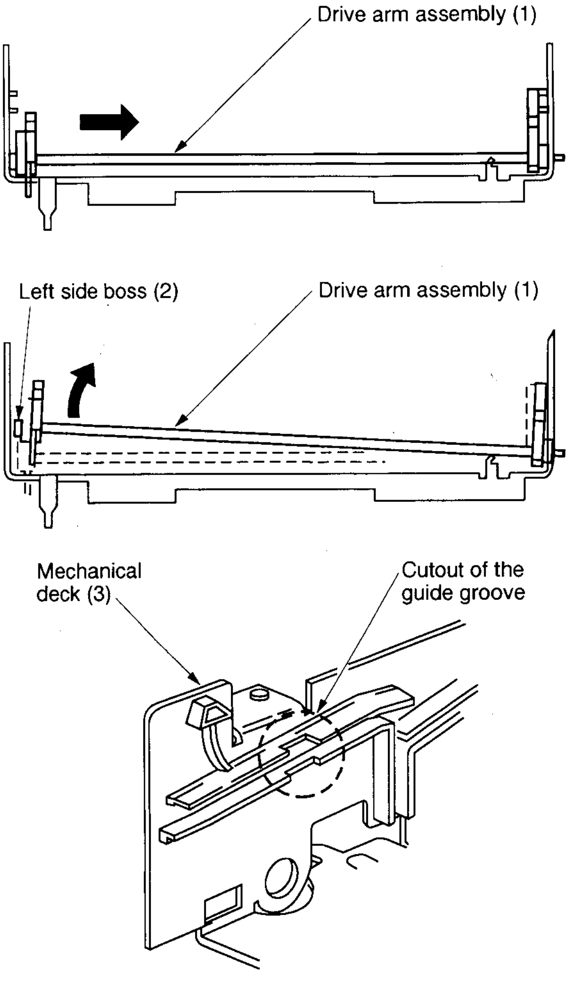

Drive arm assembly (1)
Left side boss (2)
Drive arm assembly (1)
Mechanical deck (3)
Cutout of the guide groove

Fig. 6-5-1

1-6-6. Cam Lever Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
4. Remove the loading drive assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
5. Remove the drive lever. (Refer to item "1-6-40. Drive Lever Replacement".)
6. Remove the pinch roller assembly. (Refer to item "1-6-21. Pinch Roller Assembly Replacement".)
7. Remove the cam gear. (Refer to item "1-6-31. Cam Gear Replacement".)
8. Move the cam lever (1) until it stops in the direction shown by the arrow (A). Pull out the cam lever (1) lifting up straightly at the position where the cam lever (1) stops.
9. Apply grease to the portions of bosses (A) to (C) on a new cam lever.

Note:

- Confirm that the boss (A) on the cam lever (1) is inserted into the hole on the F/L drive slider (2).
- After inserting the cam lever (1), confirm that the cam lever (1) moves smoothly.

10. Replace the cam lever in the reverse order of removal.

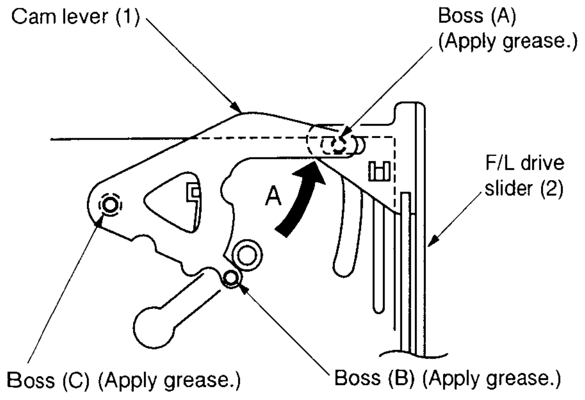


Fig. 6-6-1

1-6-7. F/L Drive Slider Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
4. Remove the loading drive assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
5. Remove the drive lever. (Refer to item "1-6-40. Drive Lever Replacement".)
6. Remove the pinch roller assembly. (Refer to item "1-6-21. Pinch Roller Assembly Replacement".)
7. Remove the cam gear. (Refer to item "1-6-31. Cam Gear Replacement".)
8. Remove the cam lever. (Refer to item "1-6-6. Cam Lever Replacement".)
9. Remove the drive lever gear. (Refer to item "1-6-4. Drive Lever Gear Replacement".)
10. Push the F/L drive slider (1) in the direction shown by the arrow (A) and slide it. Furthermore, pull out it to the front side lifting it in the direction shown by the arrow (B).
11. Apply grease to the shaded parts (a) to (d) on a new F/L drive slider (1).

Note:

For the phase alignment of the drive lever gear, refer to item "1-6-4. Drive Lever Gear Replacement".

12. Replace the F/L drive slider (1) in the reverse order of removal.

Note:

After completion of the replacement, confirm that the F/L drive slider (1) moves smoothly.

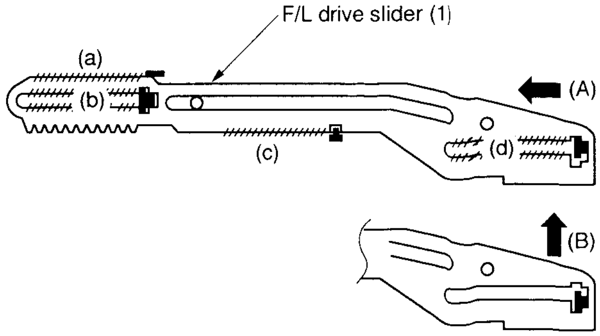


Fig. 6-7-1

1-6-8. Arm Brake Lever Assembly and Arm Brake Torsion Spring Replacement

1. Make the cassette holder assembly to the slot-out (EJECT) position.
2. Turn the arm brake lever assembly (1) in the direction shown by the arrow (A) until it stops. Pull out the arm brake lever assembly (1) to the front at the position it stops.

Note:

Take care that the arm brake torsion spring (2) is removed forcefully.

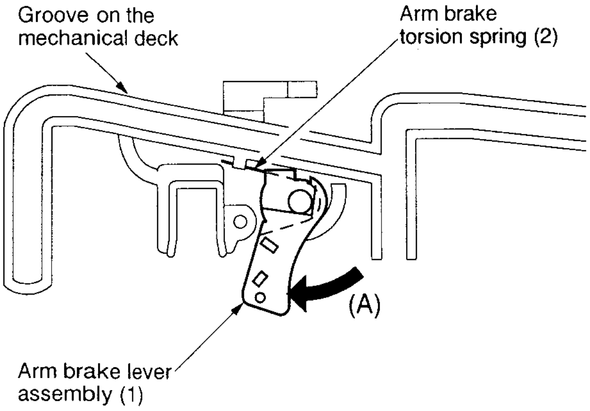

Groove on the mechanical deck
Arm brake torsion spring (2)
(A)
Arm brake lever assembly (1)

Fig. 6-8-1

3. Hook the arm brake torsion spring (2) temporarily to a new arm brake lever assembly (1).

Note:

Take care of the direction of the arm brake torsion spring (2) so that the longer end of the arm brake torsion spring (2) is hooked on the temporary hook.

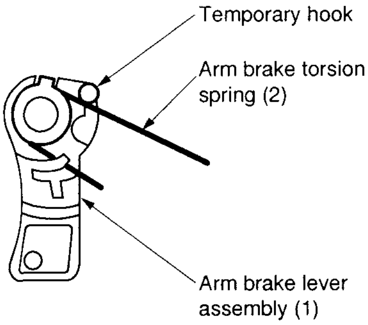

Temporary hook
Arm brake torsion spring (2)
Arm brake lever assembly (1)

Fig. 6-8-2

4. Insert the hook portion on the arm brake lever assembly (1) to the cutout on the mechanical deck.
5. Turn the arm brake lever assembly (1) counterclockwise and fix it at the position which the arm brake lever assembly (1) faces to the straight below.
6. When pushing the tip of the arm brake torsion spring (2) located at (B) position, the tip is removed from the temporary hook and moves to the hook on the mechanical deck.
7. The arm brake lever assembly turns to the specified position by force of the arm brake torsion spring.

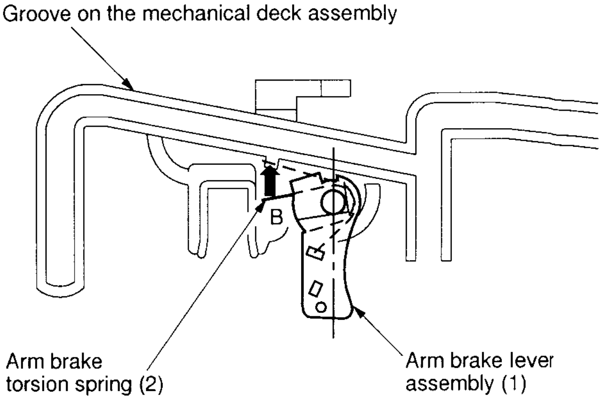

Groove on the mechanical deck assembly
B
Arm brake torsion spring (2)
Arm brake lever assembly (1)

Fig. 6-8-3

1-6-9. Cylinder Assembly Inspection and Replacement

<Inspection>

1. Check if the tape transport surface on the lower cylinder assembly are not damaged.
2. Check if the rotation of the upper cylinder assembly is not abnormal.

When any abnormality is found according to the inspection procedures described above 1 and 2, replace the cylinder assembly.

<Replacement>

1. Remove the ground brush assembly.
2. Remove the head cleaner. (Refer to item "1-6-14. Head Cleaner Replacement.")
3. Remove the FPC (1) on the Preamplifier.
4. Remove three screws (2) and the cylinder holding plate (3) and (4). (Refer to item "1-6-12. Cylinder Holding Plate Replacement".)
5. Remove the cylinder assembly (5).
6. Remount the cylinder assembly (5) in the reverse order of removal. Fix the cylinder pressing slightly in the direction shown by the arrow (A) and the cylinder holding plate (3) pressing slightly in the direction shown by the arrow (B). (Tightening torque: 294 – 392 mN•m (3 – 4 kg•cm))

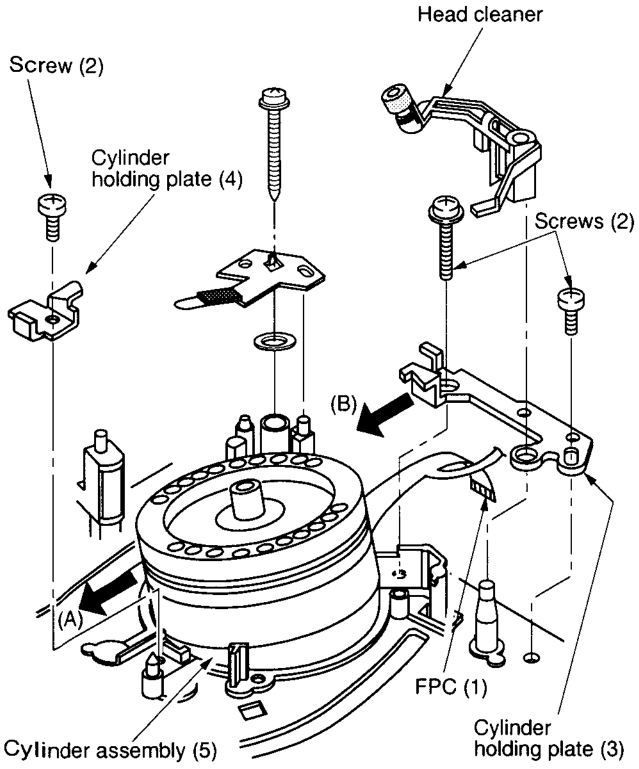

Head cleaner
Screw (2)
Cylinder holding plate (4)
Screws (2)
(B)
(A)
FPC (1)
Cylinder assembly (5)
Cylinder holding plate (3)

Fig. 6-9-1

Note:

- When replacing, take much care not to touch the video head directly and damage the cylinder.

7. Perform the tape transport adjustment.

1-6-10. Upper Cylinder Assembly Inspection and Replacement

<Inspection>

1. Check if the video heads are damaged or worn out.
2. Check the video heads for clogging. (In case that the clogging is not remedied after cleaning.)

<Replacement>

1. Remove the ground brush assembly.
2. Remove two securing screws (1) and remove the upper cylinder assembly (2).
3. Clean the new upper cylinder assembly (2) and the flange (3) mounting surface with a cleaning kit.
4. Align the head A (green) and the marker on the rotary transformer PC board (4) and then mount the upper cylinder assembly (Tightening torque : 294 – 392 mN•m. (3 – 4kg•cm)

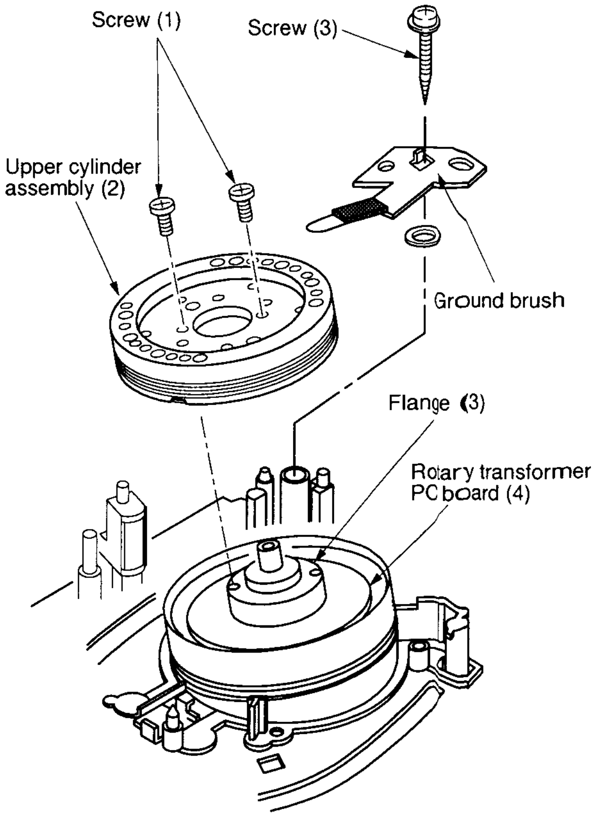

Screw (1)
Screw (3)
Upper cylinder assembly (2)
Ground brush
Flange (3)
Rotary transformer PC board (4)

Fig. 6-10-1

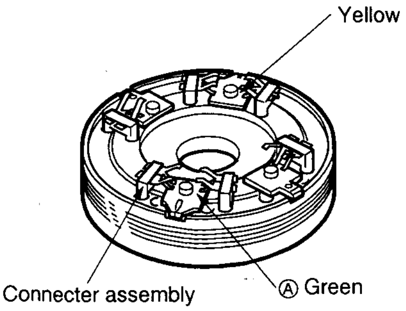


Fig. 6-10-2

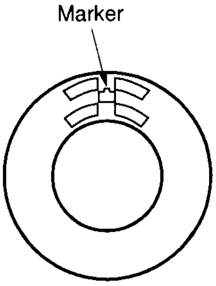


Fig. 6-10-3

Note:

- During the work in steps 3 to 4, take care not to touch the connector assembly and deform the spring.

5. Perform the tape transport adjustment according to its procedures.

1-6-11. Lower Cylinder Assembly Inspection and Replacement

<Inspection>

1. Check if the tape transport surface on the lower cylinder assembly is not damaged.
2. Check if the rotation of the upper cylinder assembly is not abnormal.
3. Check if the FPC on the Preamplifier is not damaged.

When any abnormality is found under the inspection described in the steps (1) to (3), replace the cylinder assembly.

<Replacement>

1. Remove the cylinder assembly. (Refer to item "1-6-9. Cylinder Assembly Inspection and Replacement".)
2. Remove two securing screws (1) and remove the upper cylinder assembly (2).
3. Replace the lower cylinder assembly (3).
4. Mount the lower cylinder assembly in the reverse order of removal taking care not to touch the video head directly and damage the cylinder.

Note:

- Take care not to deform the joint spring on the upper cylinder assembly (2).

5. Perform the tape transport adjustment according to its procedures.

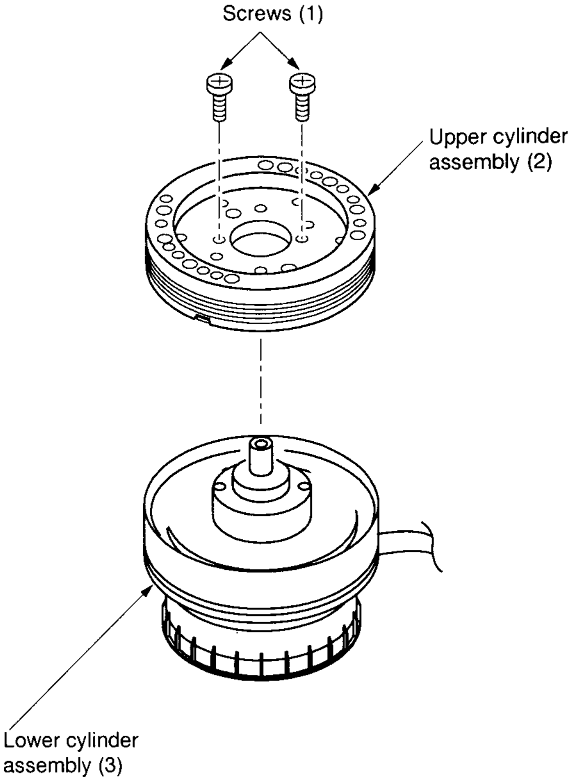


Fig. 6-11-1

1-6-12. Cylinder Holding Plate Replacement

1. Remove screws (1) and (2) securing the cylinder holding plate (3) and a screw (5) securing the cylinder holding plate (4).
2. Remove the cylinder holding plate (3) and (4) sliding in the direction shown by the arrow (B) and (A).
3. Eliminate the cylinder lock key (wedge shaped parts).
4. After replacing the cylinder holding plates (3) and (4), mount new parts in the reverse order of removal.

Note:

- When remounting, fix the cylinder while pushing in the direction shown by the arrow (A) and the cylinder holding plate (3) in the direction shown by the arrow (B). Then tighten three screws while pushing the cylinder holding plate (4) toward the stopper on the outsert of the mechanical deck.
- Tightening order of the screws is (1) → (2) → (5).
- Tightening torque of the screws (1), (2), (5) is 294 – 392 mN•m (3 – 4 kg•cm).

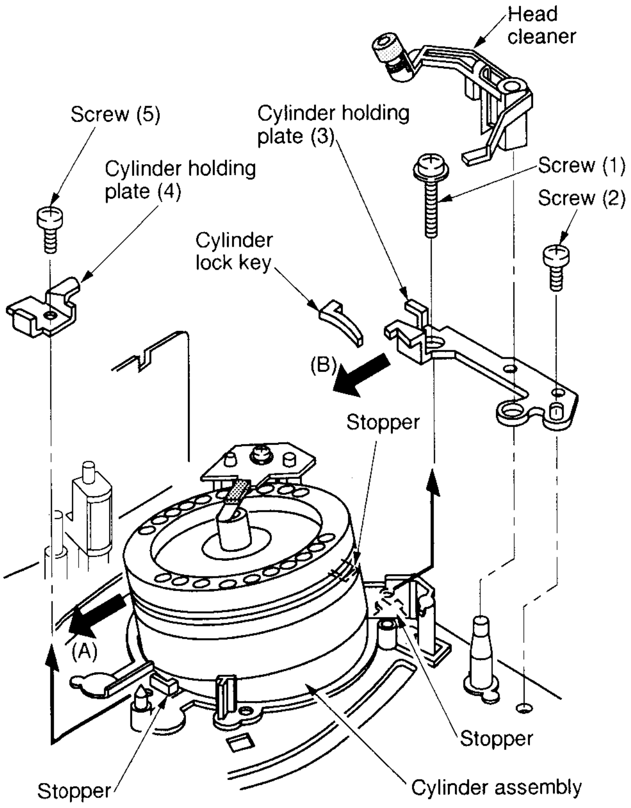

Head cleaner
Screw (5)
Cylinder holding plate (3)
Cylinder holding plate (4)
Screw (1)
Screw (2)
Cylinder lock key
(B)
Stopper
(A)
Stopper
Stopper
Cylinder assembly

Fig. 6-12-1

1-6-14. Head Cleaner Replacement

<Roller sub assembly replacement>

1. Remove the roller sub cleaner assembly (2) pulling upward from the hook (A) on the cleaner lever (1).
2. After replacing the roller sub assembly, mount in the reverse order of removal.

<Cleaner lever replacement>

1. Undo the hook (B) of the cleaner lever (1) from the mechanical deck, and pull out the cleaner lever (1) upward.
2. Replace the cleaner lever (1) on the roller sub assembly (2), and mount the cleaner lever (1) in the reverse order of removal.

Note:

- Take care the roller sub assembly (2) is not stained with grease or oil.

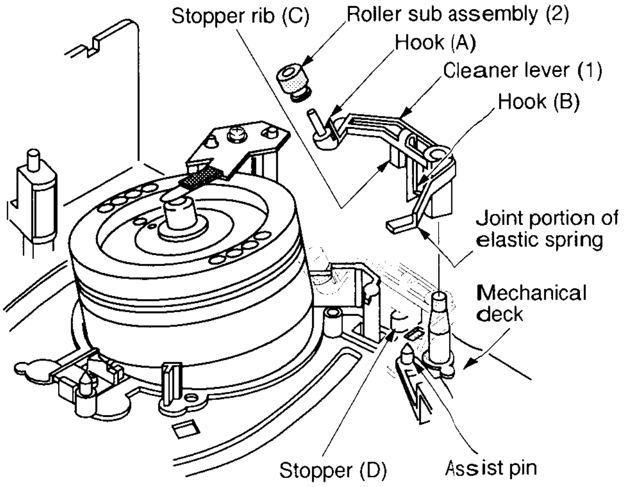

Stopper rib (C)
Roller sub assembly (2)
Hook (A)
Cleaner lever (1)
Hook (B)
Joint portion of elastic spring
Mechanical deck
Stopper (D)
Assist pin

Fig. 6-14-1

Note:

- When remounting the head cleaner, position the stopper rib (C) in front of the stopper (D).

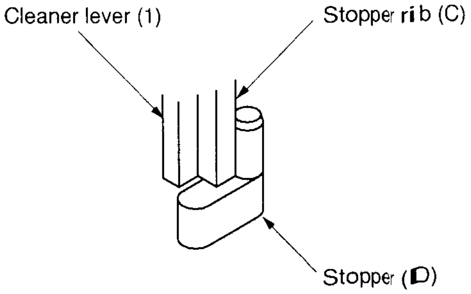

Cleaner lever (1)
Stopper rib (C)
Stopper (D)

Fig. 6-14-2

Note:

- Confirm that the joint portion (E) of the elastic spring positions in front of the assist pin (F) on the cleaner assist lever (4).

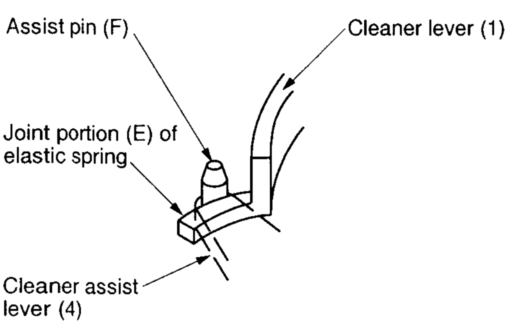

Assist pin (F)
Cleaner lever (1)
Joint portion (E) of elastic spring
Cleaner assist lever (4)

Fig. 6-14-3

1-6-15. No. 8, No. 3 Guide Sleeves Replacement

1. When replacing the No. 8 guide sleeve (1), first remove the guide cap (2) on the loading bracket assembly.
2. Pull out the guide sleeve (1) from the guide post (3).

Note:

- Take care not to break the No. 8, No. 3 guide posts on the mechanical deck if twisting the guide sleeve forcefully.

3. Insert a new guide sleeve (1) to the guide post.

Note:

- When inserting the guide sleeve (1), take care so that its hole faces the opposite side to the tape transport surface.

4. For No. 8 guide sleeve, insert the No. 8 guide cap (2) onto it.

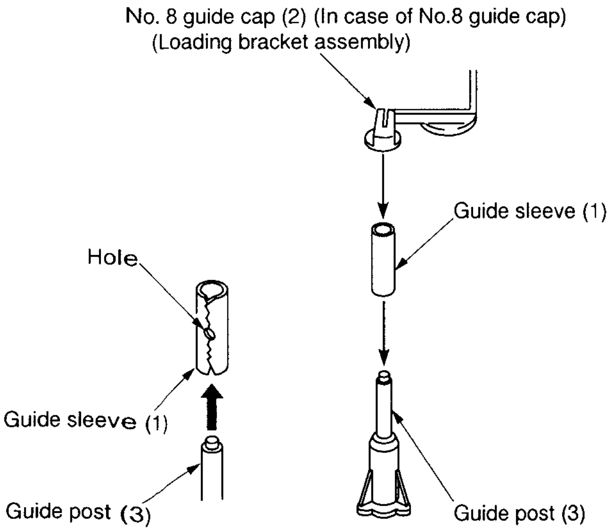

No. 8 guide cap (2) (In case of No.8 guide cap)
(Loading bracket assembly)
Guide sleeve (1)
Hole
Guide sleeve (1)
Guide post (3)
Guide post (3)

Fig. 6-15-1

1-6-16. ACE Head Assembly Replacement

1. Remove the FFC (1) from the connector.
2. Remove two screws (2) and remove the ACE main base (3) and ACE head assembly (4).
3. Remove three adjusting screws (5), (6), and (7) and then remove the ACE head assembly (4).

Note:

- When replacing ACE head (9) only without replacing its PC board, unsolder the ACE head (9) on the ACE head PC board (8) and then remove the ACE head (9) and the ACE head PC board (8).

4. Mount the ACE head assembly (4) in the reverse order of removal.

Note:

- When reassembling the ACE head assembly (4), First set the ACE springs (10) between the ACE head assembly (4) and the ACE main base (3), and secure the adjusting screws (5), (6), and (7).

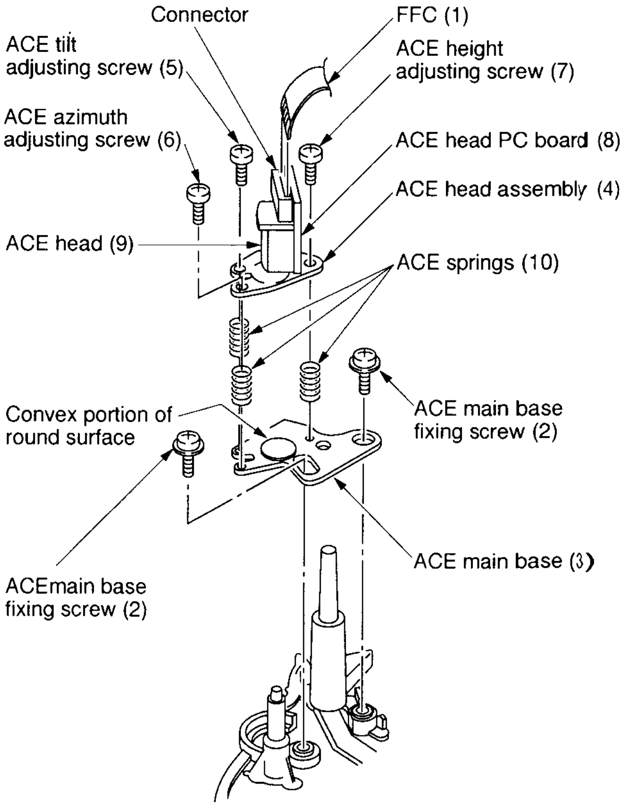

Connector
FFC (1)
ACE tilt adjusting screw (5)
ACE height adjusting screw (7)
ACE azimuth adjusting screw (6)
ACE head PC board (8)
ACE head assembly (4)
ACE head (9)
ACE springs (10)
ACE main base fixing screw (2)
Convex portion of round surface
ACE main base (3)
ACEmain base fixing screw (2)

Fig. 6-16-1

- When securing three adjusting screws, mount the ACE main base (3) and ACE head assembly (4) so that the clearance between them becomes parallel with the specified preset value (4.3 ± 0.1 mm).

5. After replacing, perform the tape transport adjustment.

Note:

- When replacing the ACE head assembly (4), always use an ACE head (9) having the same part number. Do not use any other ACE head assembly.

1-6-17. FE Head Replacement

1. Open the FE head holding hook (1) on the mechanical deck slightly in both left and right directions and remove the FE head (2) by moving in the direction shown by the arrows.
2. Replace the FE head (2) and mount the parts in the reverse order of removal.
3. Perform adjustment from the linearity adjustment item in the tape transport system adjustment.

Note:

- When mounting the FE head, Push the head backward completely.
- Though FE head (2) can be removed upward by opening the FE head holding hook (1) to both left and right directions, perform the standard replacement procedure described above since this may cause deformation of the hook.

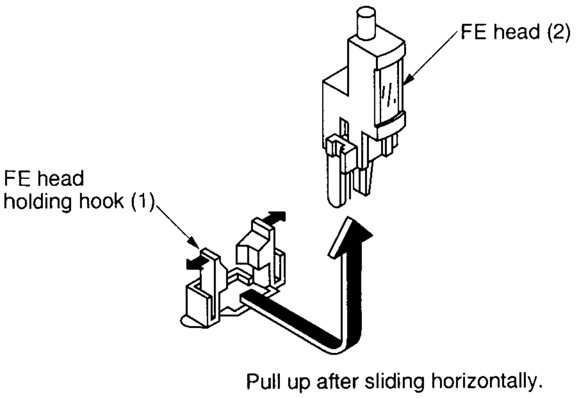

FE head (2)
FE head holding hook (1)
Pull up after sliding horizontally.

Fig. 6-17-1

1-6-18. S, T Slider Replacement

1. Remove the tension lever assembly. (Refer to item "1-6-23. Tension Lever Assembly Replacement".)
2. Remove the loading slider. (Refer to item "1-6-25. Loading Slider Replacement".)
3. Remove the S loading assembly. (Refer to item "1-6-24. S Loading Assembly Replacement".)
4. Remove the T loading assembly. (Refer to item "1-6-24. T Loading Assembly Replacement".)
5. Remove the S slider (1) and T slider (2) lifting up to the cutout of the groove on the mechanical deck (3).
6. Remove the S and T guide rollers and mount a new slider.
7. Mount the parts in the reverse order of removal.

Note:

Perform the phase alignment between the loading slider (4) and S, T loading assemblies (5), (6) referring each replacement procedure.

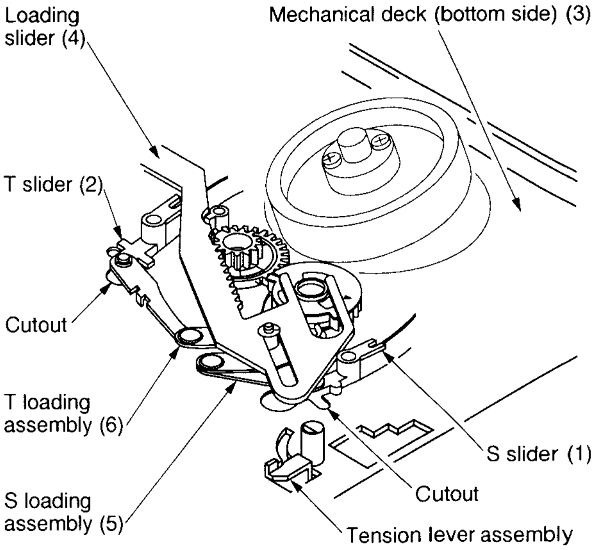

Loading slider (4)
Mechanical deck (bottom side) (3)
T slider (2)
Cutout
T loading assembly (6)
S loading assembly (5)
S slider (1)
Cutout
Tension lever assembly

Fig. 6-18-1

8. After completion of the replacement, perform the adjustment from item 1 in the tape transport system adjustment.

1-6-19. S, T Guide Rollers Replacement

The same replacement procedures will be applied for the S, T guide rollers.

1. Turn the guide roller (1) counterclockwise and remove the guide roller (1) from the slider assembly (2).
2. Mount a new guide roller on the slider assembly (2) turning clockwise.
3. After completion of the replacement, perform the adjustment from the linearity adjustment in the tape transport system adjustment..

Note:

- O ring is not applied to the T guide roller.
- For the T guide roller, marking is located on the upper flange. So take care not to mis-mount with the S guide roller.

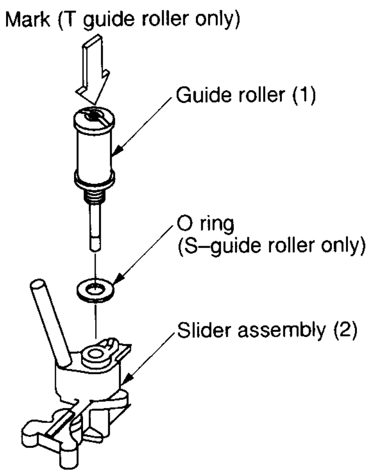


Fig. 6-19-1

1-6-20. S, T Impedance Roller Replacement

1. Remove two screws (1) and (2), and then remove two brackets (3), (4).
2. Replace two impedance rollers (5), (6).
3. Mount the parts in the reverse order of removal.
4. After completion of the replacement, perform the adjustment from the linearity adjustment in the tape transport system adjustment.

Note:

- S, T impedance rollers (5), (6) is not always applied to all models.

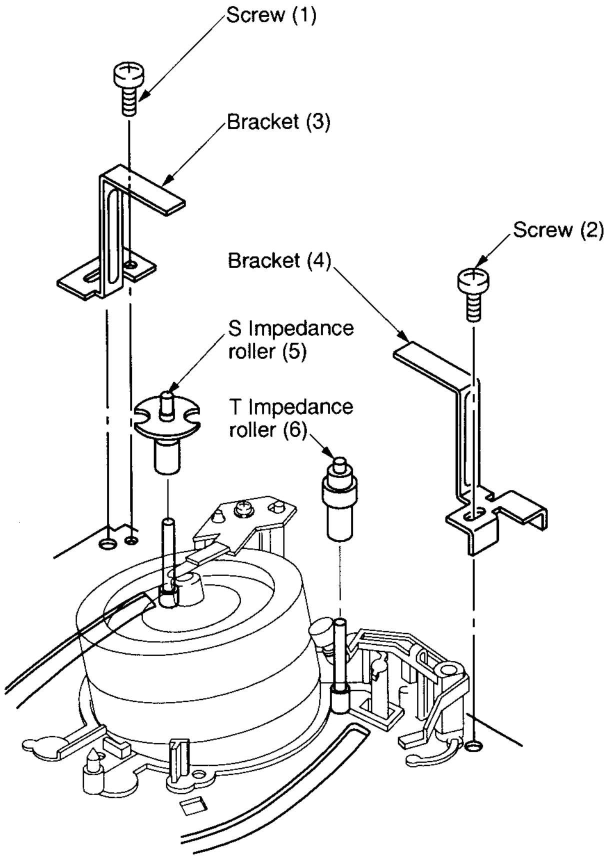


Fig. 6-20-1

1-6-21. Pinch Roller Assembly Replacement

1. Remove the loading drive assembly (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
2. Remove the pinch assembly (1) lifting vertically from the pinch post (2).
3. Remove the pinch spring (5) from the hooks on the pinch drive assembly (3) and the pinch lever assembly (4).
4. Turn the projection (A) on the pinch drive assembly (3) counterclockwise till it goes to the cutout on the pinch lever assembly (4).
5. After replacing, mount the parts in the reverse order of removal.
6. After completion of the replacement, perform the tape transport adjustment.

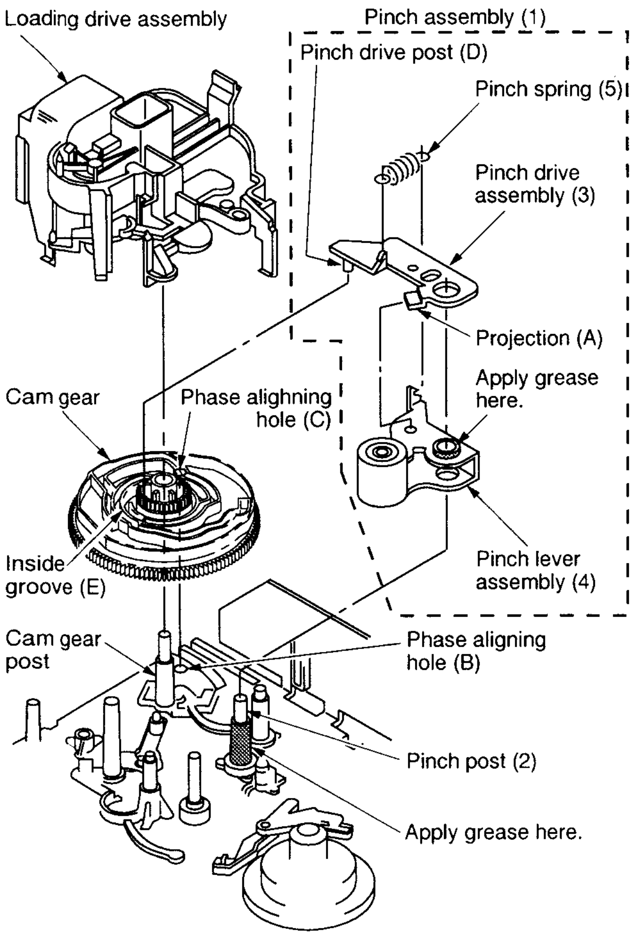

Loading drive assembly
Pinch assembly (1)
Pinch drive post (D)
Pinch spring (5)
Pinch drive assembly (3)
Projection (A)
Apply grease here.
Cam gear
Phase alighning hole (C)
Inside groove (E)
Pinch lever assembly (4)
Cam gear post
Phase aligning hole (B)
Pinch post (2)
Apply grease here.

Fig. 6-21-1

Note:

- For the removal and assembling of the loading drive assembly, refer to item 1-6-29.
- When inserting the pinch assembly (1) into the pinch post (2), insert it so that the pinch drive post (D) enters the groove (E) inside the cam gear.
- Take care not to touch the surface of the pinch roller and the grease is not stained on it.
- Be sure to apply grease to the surface of the bar-ring on the pinch lever assembly (4) and the pinch post (2) on the mechanical deck.

1-6-22. No. 9 Guide Lever Assembly Replacement

1. Remove the loading drive assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
2. Remove the drive lever. (Refer to item "1-6-40. Drive Lever Replacement".)
3. Remove the pinch assembly. (Refer to item "1-6-21. Pinch Roller Assembly Replacement".)
4. Remove the ACE head assembly. (Refer to item "1-6-16. ACE Head Assembly Replacement".)
5. Remove the cam gear (2) from the cam gear post (1).
6. Remove the T soft brake spring (3).
7. Remove the No. 9 guide lever assembly (4) lifting the No. 9 guide lever assembly upward from the No. 9 guide post (5).
8. After replacing, mount the parts in the reverse order of removal.
9. After completion of the replacement, perform the tape transport adjustment.

Note:

- When mounting the No. 9 guide lever assembly (4), confirm that (A) side of the No. 9 guide lever assembly (4) touches the capstan motor housing portion.
- After inserting the No. 9 guide lever assembly (4) into the No. 9 guide post (5), confirm that the lower projection of the No. 9 guide lever assembly (4) touches to the upper surface of the mechanical deck.
- Take care that the grease is not stained on the No. 9 guide post of the No. 9 guide lever assembly (4).
- Be sure to apply grease to the No. 9 guide post (5).

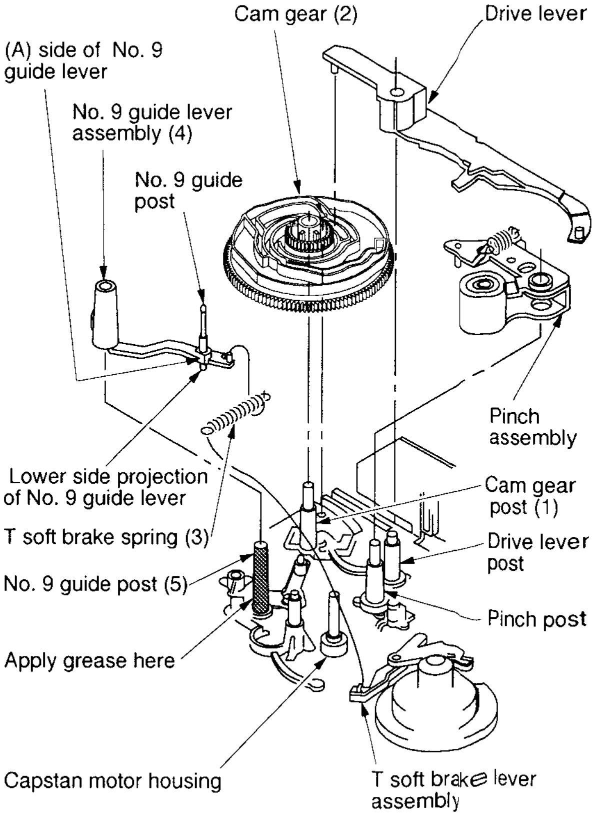

Cam gear (2)
Drive lever
(A) side of No. 9 guide lever
No. 9 guide lever assembly (4)
No. 9 guide post
Pinch assembly
Lower side projection of No. 9 guide lever
Cam gear post (1)
T soft brake spring (3)
Drive lever post
No. 9 guide post (5)
Pinch post
Apply grease here
Capstan motor housing
T soft brake lever assembly

Fig. 6-22-1

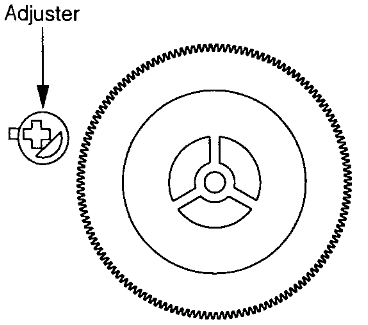
1-6-23. Tension Lever Assembly, Band Holder and Band Brake Replacement

1. Remove the tension spring (1).

Note:

- Take care not to extend or deform the tension spring.

2. After setting the band brake adjuster to the band holder assembling position, undo the claw of the snap-fit type and remove the band holder from the band brake adjuster by lifting it upward.



Band holder assembly position

Fig. 6-23-1 Detail of band holder assembling

3. Undo the claw of the outsert on the mechanical deck catching the shaft of the tension lever assembly (3) and remove the tension lever assembly lifting it upward.
4. Remove the band brake (5) from the reel table while pulling the S soft brake lever (4) in the direction shown by the arrow.
5. Remove the band brake (5) from the hook on the tension lever assembly (3).

Note:

- Take care not to contaminate, bend or damage the felt surface on the band brake (5).

6. After replacing the tension lever assembly (3), clean the shaft on the tension lever and apply a few amount of oil.
7. Mount the parts in the reverse order of the removal.
8. After mounting, check the tension post position and perform the adjustment and back tension check.
9. After completion of the replacement, perform the adjustment from the linearity adjustment in the tape transport system adjustment.

Note:

- The band holder (2) can be replaced in the procedures described above steps 1 to 3.
- The band brake (5) can be replaced in the procedures described above steps 1 to 5.
- When replacing the band holder (2) and band brake (5), the linearity adjustment is not necessary.

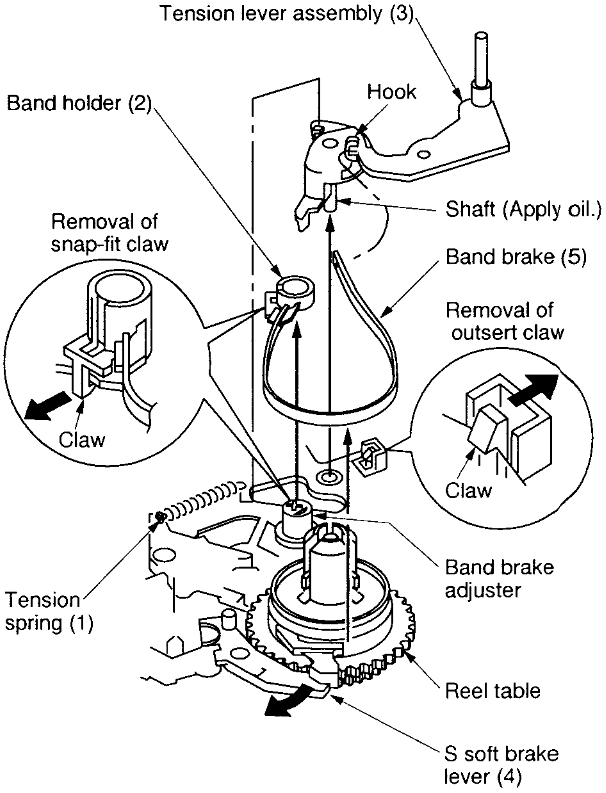

Tension lever assembly (3)
Hook
Band holder (2)
Shaft (Apply oil.)
Removal of snap-fit claw
Band brake (5)
Removal of outsert claw
Claw
Claw
Band brake adjuster
Tension spring (1)
Reel table
S soft brake lever (4)

Fig. 6-23-2

1-6-24. S,T Loading Assembly Replacement

1. Remove the mechanical deck assembly from the main PC board.
2. Set the mechanical position to the F/L out position (front side). Turn over the mechanical deck.
3. Remove the loading slider assembly. (Refer to item "1-6-25. Loading Slider Assembly Replacement".)

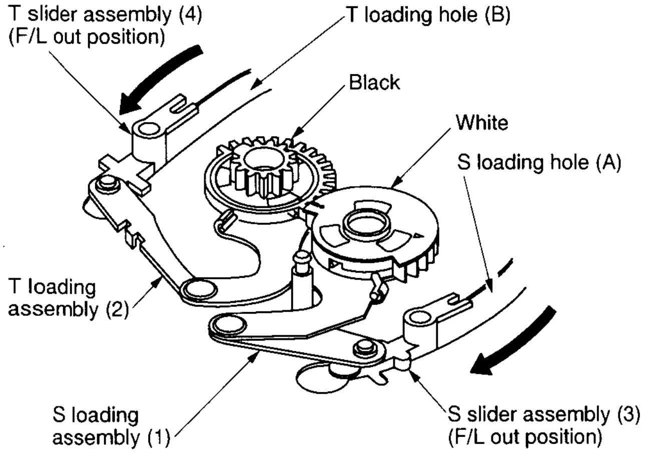

T slider assembly (4)
(F/L out position)
T loading hole (B)
Black
White
S loading hole (A)
T loading
assembly (2)
S loading
assembly (1)
S slider assembly (3)
(F/L out position)

Fig. 6-24-1

4. Remove the S, T loading assemblies (1), (2).
5. Insert the S, T slider assemblies (3), (4) along the cutout of the S, T loading holes (A) and (B) on the mechanical deck and set the S, T slider assemblies (3), (4) to the loading position (rear side).
6. Insert the T loading assembly (2) to the post (C) on the T slider assembly (4) and the post (D) on the mechanical deck. And insert the S loading assembly (1) to the post (E) on the S slider assembly (3) and the post (F) on the mechanical deck.

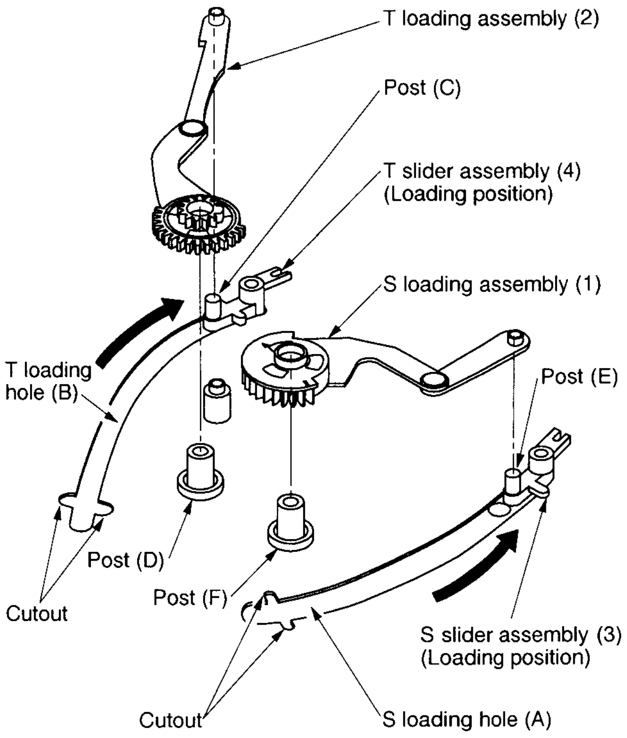

T loading assembly (2)
Post (C)
T slider assembly (4)
(Loading position)
S loading assembly (1)
T loading
hole (B)
Post (E)
Post (D)
Cutout
Post (F)
S slider assembly (3)
(Loading position)
Cutout
S loading hole (A)

Fig. 6-24-2

Note:

- Align the phases of the ▲ marks on the S, T loading gear (1), (2).

7. Set the S, T slider assemblies (3), (4) to the F/L out position.

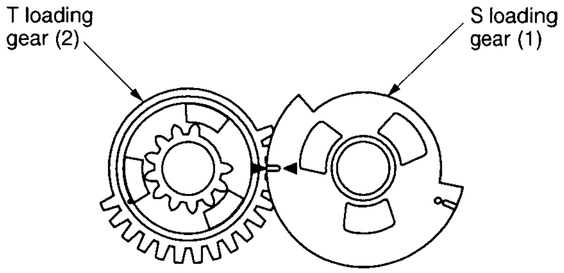

T loading
gear (2)
S loading
gear (1)

Fig. 6-24-3

1-6-25. Loading Slider Assembly Replacement

1. Remove the mechanical deck from the main PC board.
2. Set the mechanical position to the F/L out position.
3. Turn over the mechanical deck.
4. Remove the stop ring (1).
5. Remove the loading slider assembly (2) while lifting its tip upward using the mold portion on the loading slider assembly (2) as a fulcrum.
6. Mount the parts in the reverse order of removal.

Note:

- When mounting the loading slider assembly (2), insert the tip of the loading slider assembly (2) slightly to the mold portion, then mount it so that the claw on the outsert is in the position of the cutout portion of the loading slider assembly.
- Confirm that the position mark on the loading slider assembly (2) and the mark on the T loading gear match each other in position.

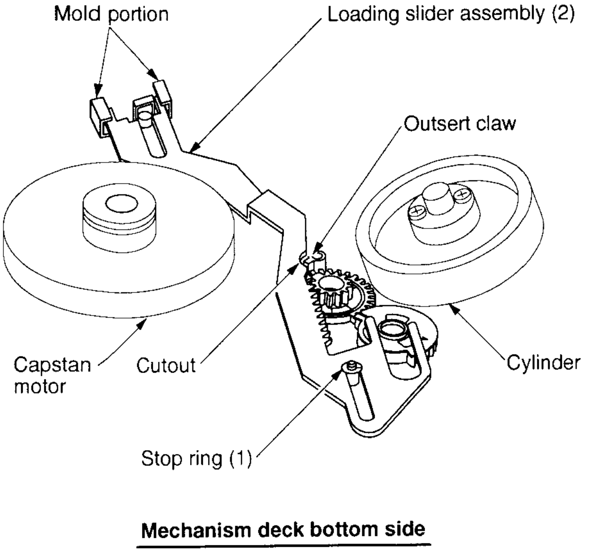

Mold portion
Loading slider assembly (2)
Outsert claw
Capstan motor
Cutout
Cylinder
Stop ring (1)
Mechanism deck bottom side

Fig. 6-25-1 View from Mechanical deck bottom side

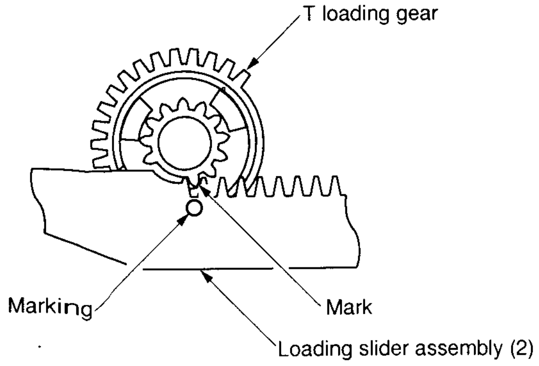

T loading gear
Marking
Mark
Loading slider assembly (2)

Fig. 6-25-2

1-6-26. Hook Lever Assembly Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Replacement".)
3. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
4. Remove the tension spring (1).
5. Turn the hook lever assembly (2) counterclockwise slightly, and remove the claw on the hook lever assembly (2) then replace.
6. After replacing the hook lever assembly (2) , insert the (A) portion of the hook lever under the S reel table assembly. When the portions (B), (C), (D) are in line, push the claw into the mechanical deck.

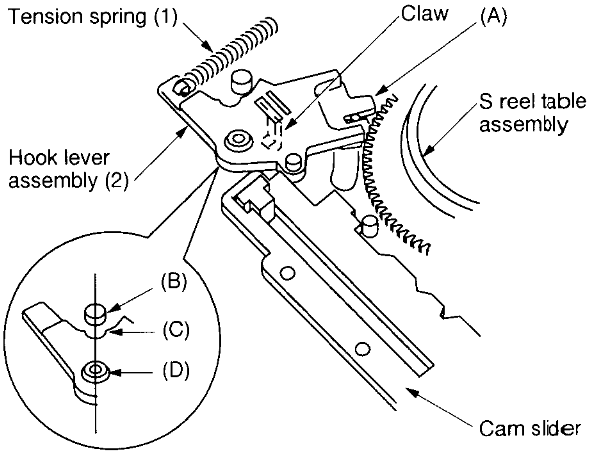

Tension spring (1)
Claw
(A)
S reel table assembly
Hook lever assembly (2)
(B)
(C)
(D)
Cam slider

Fig. 6-26-1

7. Turn the hook lever assembly (2) clockwise till it stops, and mount the tension spring (1). After replacing the hook lever assembly (2), slide the cam slider in the direction shown by the arrow, and then position the boss (E) under the cam slider.

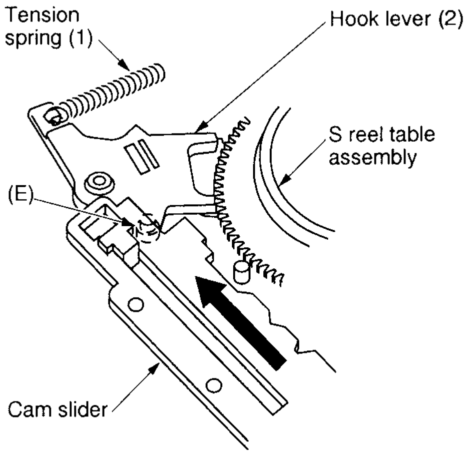

Tension spring (1)
Hook lever (2)
S reel table assembly
(E)
Cam slider

Fig. 6-26-2

1-6-27. Hook Replacement

1. Remove the hook lever assembly. (Refer to item "1-6-26. Hook Lever Assembly Replacement".)
2. Turn over the hook lever assembly (1) and remove the hook lever assembly (1) opening the portion (A) of the hook (2) slightly and lifting the hook (2) upward.
3. When mounting a new hook, push the hook (2) in the portion (B) from above.

Note:

- Take care not to confuse the mounting direction of the hook (2).

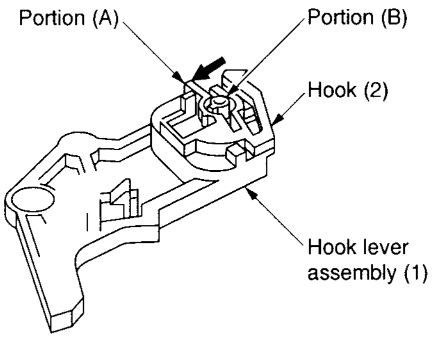

Portion (A)
Portion (B)
Hook (2)
Hook lever assembly (1)

Fig. 6-27-1

1-6-28. Tension Drive Lever Replacement

1. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
2. Turn over the mechanical deck and remove the tension drive lever (1) from the projection (A) moving counterclockwise slightly.
3. After replacing the tension drive lever (1), mount in the reverse order of removal.

Note:

- For the cam slider mounting, refer to the notes in item 1-6-41.

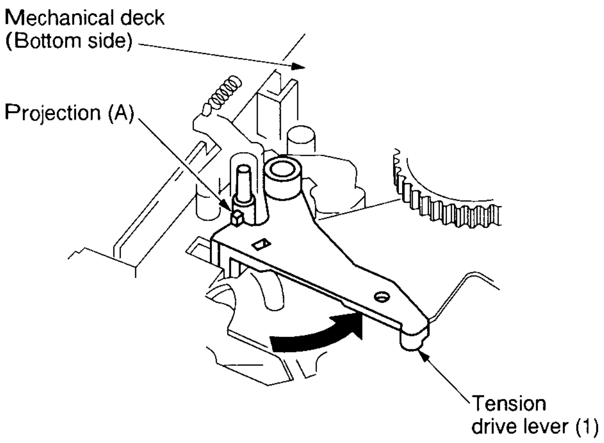

Mechanical deck (Bottom side)
Projection (A)
Tension drive lever (1)

Fig. 6-28-1

1-6-29. Loading Drive Assembly Replacement

1. Remove the F/L ground plate and the head cleaner assembly. (Refer to item "1-6-14. Head Cleaner Assembly Replacement".)
2. Remove two flat cables (1) from the connectors.
3. Pull out the portion (A) (No. 8 guide cap) from the motor bracket (2).
4. Remove four claws (a), (b), (c), (d) securing the motor bracket in the order of (a) → (b) → (c) → (d).

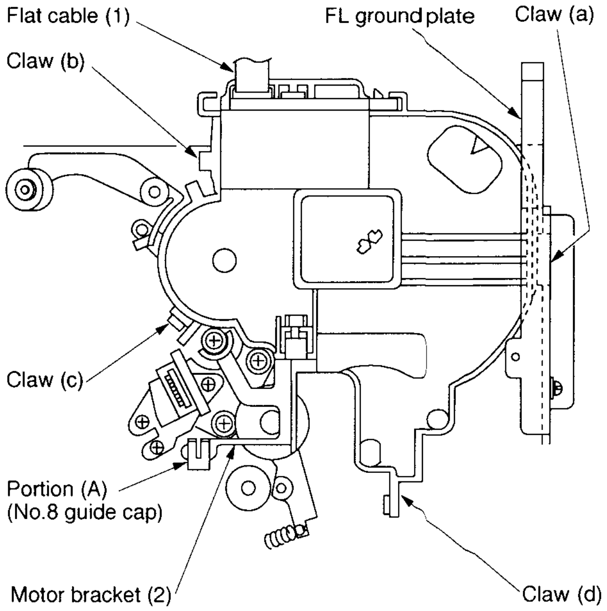

Flat cable (1)
FL ground plate
Claw (a)
Claw (b)
Claw (c)
Portion (A) (No.8 guide cap)
Motor bracket (2)
Claw (d)

Fig. 6-29-1

Note:

- Remove the claw (a) inserting a driver.
- Remove the claws (b) and (c) pushing inside previously and opening the claws slightly.

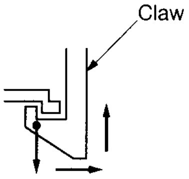


Fig. 6-29-2

<Preparation for Loading drive assembly mounting >

a) Confirm that the head cleaner assembly is removed.

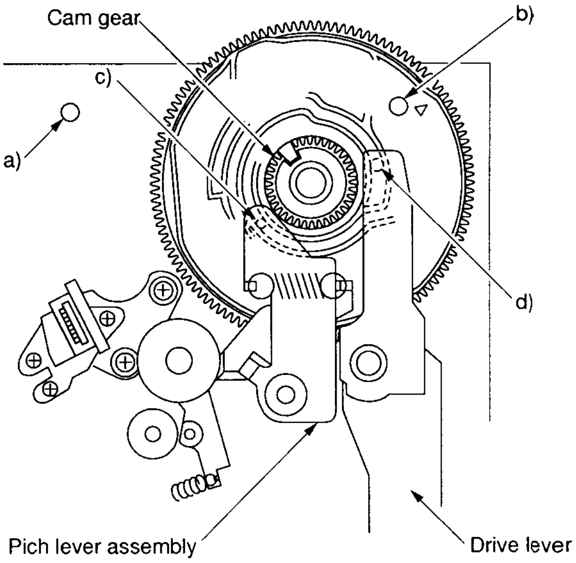
b) Confirm that the small hole b) on the cam gear aligns with the hole on the mechanical deck.

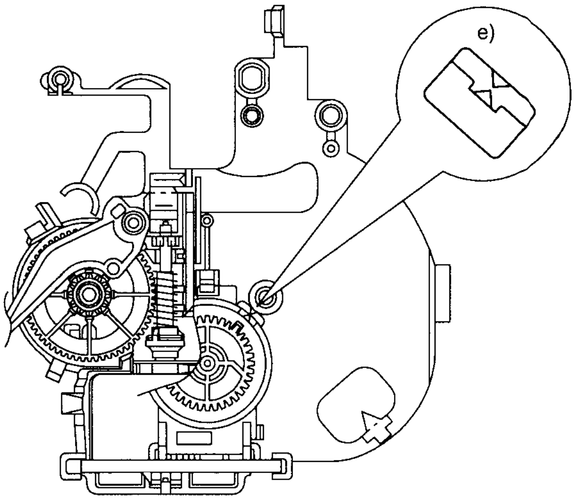
c) Confirm that the clearance between the pinch lever assembly and the cam gear is approx. 0.3 mm. (Confirm that the pinch lever assembly is correctly mounted on the groove of the cam gear.)

d) Confirm that the clearance between the drive lever and the cam gear is approx. 2 mm. (Confirm that the drive lever is correctly mounted on the groove of the cam gear.)

e) Confirm that the Δ mark on the rotor of the cam switch aligns with the Δ mark on the motor bracket.

5. After completion above steps a) to e), mount the loading drive assembly. Push four claws to the motor bracket in the order of (d) → (c) → (b) → (a) and push the portion (A) (No. 8 guide cap) into the motor bracket.
6. Confirm that the Δ mark on the rotor of the cam switch aligns with that on the bracket when the hole b) on the cam gear aligns with the hole on the mechanical deck. If the alignment of the Δ marks cannot be confirmed, remove loading drive assembly once again and reinstall after confirming the above steps a) to e).
7. Mount two flat cables.
8. Mount the F/L ground plate and the head cleaner assembly.



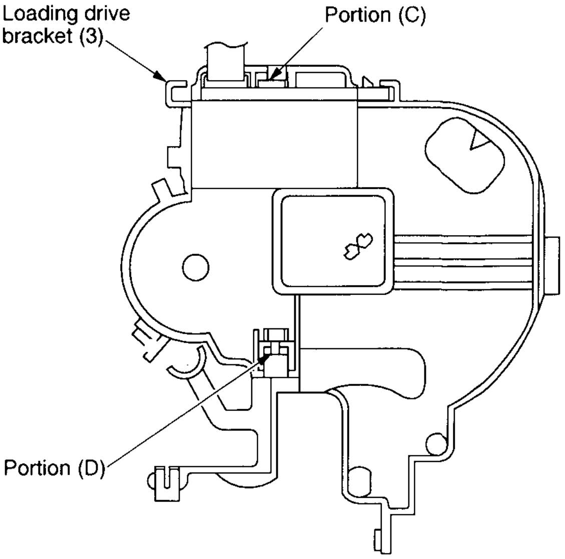


Loading drive assembly bottom side

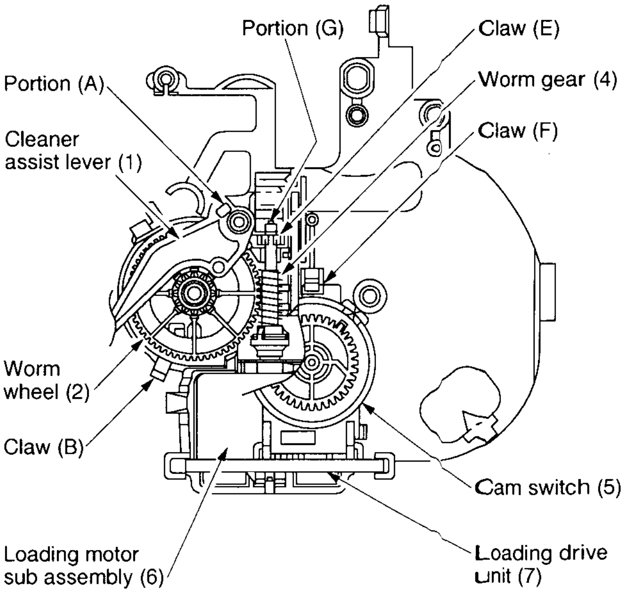
Fig. 6-29-3

1-6-30. Loading Motor Sub Assembly, Cam Switch and Loading Drive Unit Replacement

1. Remove the loading drive assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
2. Remove the cleaner assist lever (1) from the claw (A).
3. After removing the cleaner assist lever (1), the worm wheel can be also removed upward.
4. Insert a slot-type screwdriver into the portion (C) of the loading drive bracket (3) and push the loading motor 2 – 3 mm lower. And push the tip of worm gear from the portion (D) of the loading bracket (3), then remove the worm gear (4) from the claw (E).
5. Remove the cam switch (5) from the claw (F) on the loading drive bracket (3) and pull out the loading drive unit (7) and the worm gear (4) simultaneously.
6. Replace the loading drive unit (7). When mounting the PC boards of the cam switch (5) and the loading drive unit (7), take care that no clearance is allowed.
7. Insert the loading drive unit (7) and the worm gear (4) into the loading drive bracket (3).
8. Push the tip (G) of the worm gear (4) into the claw (E) on the loading motor bracket.
   In this process, take care not to bend the tip of the worm gear with strong pressure.
9. Push the cam switch (5) into the claw (F) on the loading motor bracket.
10. Mount the parts in the reverse order of removal.


Loading drive bracket (3)
Portion (C)
Portion (D)

Loading drive assembly (Top Side)


Portion (G)
Claw (E)
Portion (A)
Worm gear (4)
Claw (F)
Cleaner assist lever (1)
Worm wheel (2)
Claw (B)
Cam switch (5)
Loading motor sub assembly (6)
Loading drive unit (7)

Loading drive assembly (Bottom side)

Fig. 6-30-1

1-6-31. Cam Gear Replacement

1. Remove the loading drive assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement".)
2. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
3. Remove the drive lever. (Refer to item "1-6-40. Drive Lever Replacement".)
4. Remove the pinch roller assembly. (Refer to item "1-6-21. Pinch Assembly Replacement".)
5. Remove the cam gear.
6. Apply grease on a new cam gear on the shaded portion as shown in Fig. 6-31-1 and the shaft of the main base.

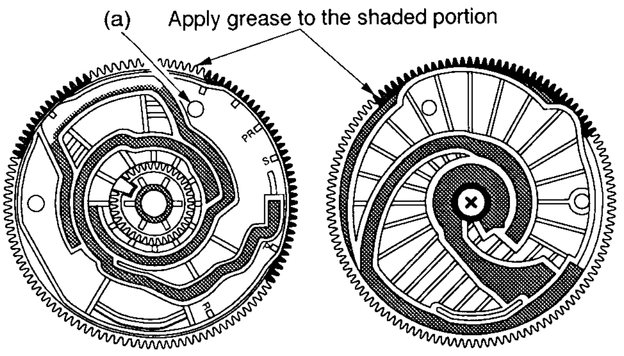

(a)
Apply grease to the shaded portion

Fig. 6-31-1

7. Make the S, T slider to the slot out condition.
8. Push the cam lever (1) and the pin (2) (loading slider) in the direction shown by the arrows (A) and (B).
9. Mount the cam gear at the angle which the small hole (a) on the cam gear aligns with the hole on the mechanical deck. (Refer to Fig. 6-31-1.)

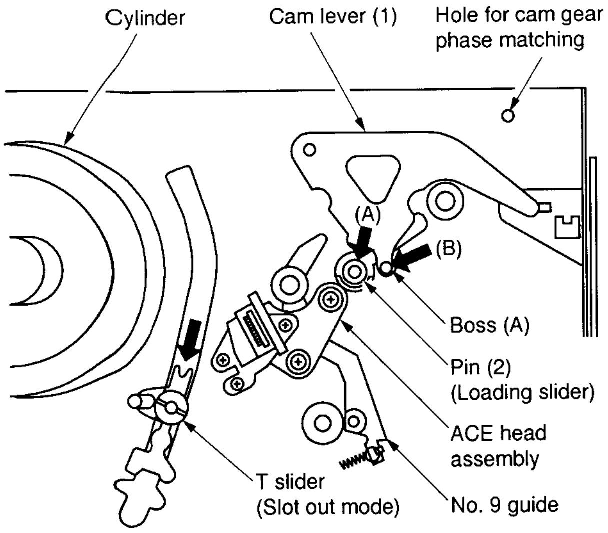

Cylinder
Cam lever (1)
Hole for cam gear phase matching
(A)
(B)
Boss (A)
Pin (2) (Loading slider)
ACE head assembly
T slider (Slot out mode)
No. 9 guide

Fig. 6-31-2

10. Mount the parts in the reverse order of removal.

1-6-32. S Reel Table Assembly and Washer 2 Replacement

1. Remove the top bracket and the cassette holder assembly. (Refer to item "1-6-1. Top Bracket Replacement and 1-6-2. Cassette Holder Assembly Replacement".)
2. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
3. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
4. Remove the S soft brake and S main brake assembly. (Refer to item "1-6-38. S Soft Brake Replacement and 1-6-37. S Main Brake Assembly Replacement".)
5. Remove the tension lever assembly. (Refer to item "1-6-23. Tension Lever Assembly Replacement".)
6. Remove the S reel table assembly (1) pulling it out upward.
7. Remove the washer 2 (2).
8. After cleaning the reel shaft (3) with a cleaning kit, insert a new washer 2 (2) to the reel shaft (3) and apply a drop of oil to the shaded portions (two locations) on the reel shaft (3).
9. After replacing, mount the parts in the reverse order of removal.
10. Confirm the reel torque using a torque cassette.

Note:

- The washer 2 (2) can use repeatedly.

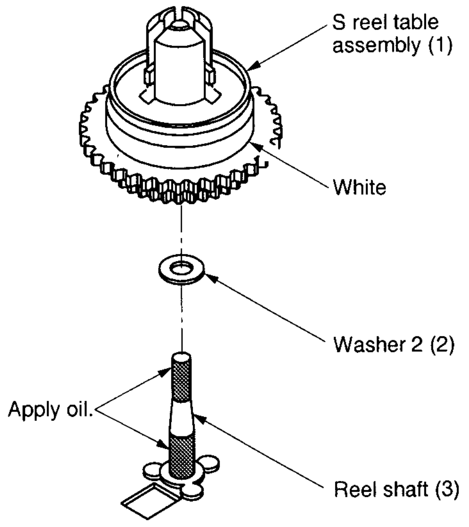

S reel table assembly (1)
White
Washer 2 (2)
Apply oil.
Reel shaft (3)

Fig. 6-32-1

1-6-33. T Reel Table Assembly and Washer 2 Replacement

1. Remove the top bracket and the cassette holder assembly. (Refer to item "1-6-1. Top Bracket Replacement and 1-6-2. Cassette Holder Assembly Replacement".)
2. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
3. Remove the T soft brake and T main brake assembly (Refer to item "1-6-41. Cam Slider Replacement".)
4. Remove the T reel table assembly (1) pulling it out upward.
5. Remove the washer 2 (2).
6. After cleaning the reel shaft (3) with a cleaning kit, insert a new washer 2 (2) to the reel shaft (3) and apply a drop of oil to the shaded portions (two locations) on the reel shaft (3).
7. After replacing, mount the parts in the reverse order of removal.
8. Confirm the reel torque using a torque cassette.

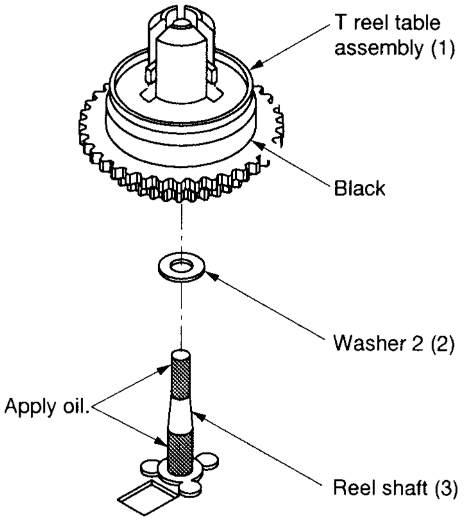

T reel table assembly (1)
Black
Washer 2 (2)
Apply oil.
Reel shaft (3)

Fig. 6-33-1

Note:

- Washer 2 (2) can use repeatedly.

1-6-34. Idle Arm Assembly Replacement (Center Gear Pulley, Idle Kick Lever, Idle up/down Lever)

1. Remove the mechanical deck from the main PC board.
2. Remove the stop ring (1) turning over the mechanical deck.
3. Remove the center gear pulley (2) lifting it upward.
4. Remove the claw (A) on the idle kick lever (3) moving and pulling it upward.
5. Remove the slit washer (4).
6. Remove the idle up/down lever (5) and the idle arm (6) simultaneously from two claws (B) on the mechanical deck.
7. After cleaning the center gear post (7) using a cleaning kit, apply a few drops of oil to the shaded portion on the center gear post.
8. Mount the parts in the reverse order of removal.

Note:

- Stop ring (1) is impossible to use again.
- When mounting the parts, take care of the notice shown in Fig. 6-34-2.

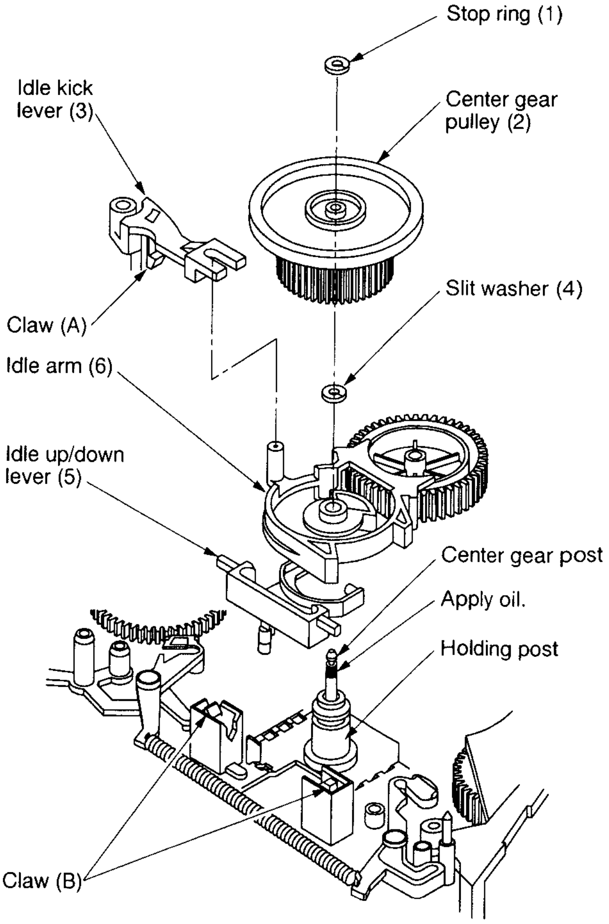

Stop ring (1)
Idle kick lever (3)
Center gear pulley (2)
Slit washer (4)
Claw (A)
Idle arm (6)
Idle up/down lever (5)
Center gear post
Apply oil.
Holding post
Claw (B)

Fig. 6-34-1

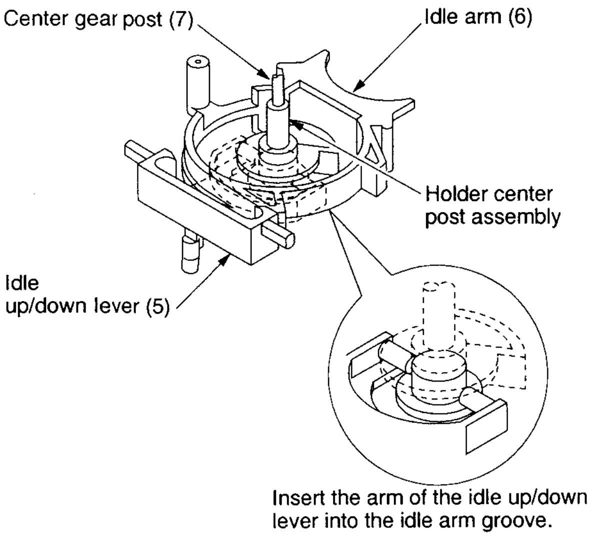

Center gear post (7)
Idle arm (6)
Holder center post assembly
Idle up/down lever (5)
Insert the arm of the idle up/down lever into the idle arm groove.

Fig. 6-34-2

1-6-35. Holder Center Post Assembly Replacement

1. Turn over the mechanical deck and remove the center gear pulley and the idle arm. (Refer to item "1-6-34. Idle Arm Assembly Replacement".)
2. Turn over the mechanical deck and remove the top bracket and the cassette holder assembly. (Refer to item "1-6-1. Top Bracket Assembly Replacement and 1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
4. After removing two screws (1), replace the holder center post assembly (2).
5. After replacing, mount the parts in the reverse order of removal.

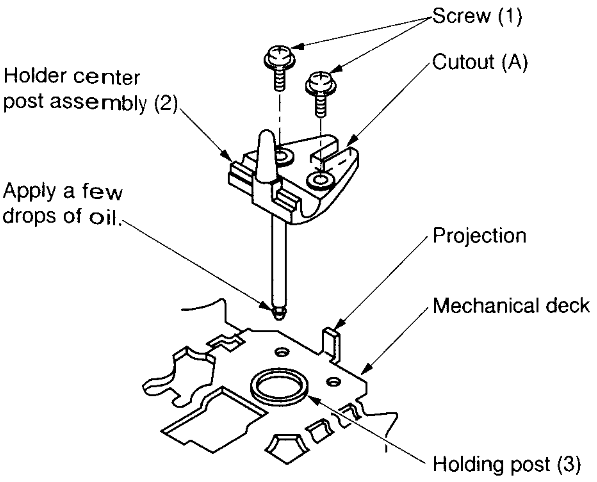

Screw (1)
Cutout (A)
Holder center post assembly (2)
Apply a few drops of oil.
Projection
Mechanical deck
Holding post (3)

Fig. 6-35-1

Note:

- When mounting, push the cutout (A) on the holder center post assembly (2) aligning with the projection on the mechanical deck.
- Screw tightening torque is 294 – 392 mN•m (3 – 4 kg•cm).
- Before mounting the center gear pulley, apply a few drops of oil. (Refer to Fig. 6-34-1.)

1-6-36. REC Inhibiting Lever Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
4. Remove the tension spring (2).
5. Undo the claw (A) on the S soft brake (1) sliding and lifting it upward.
6. Remove the projection (B) on the REC inhibiting lever (3) sliding in the direction shown by the arrow and lifting it upward.
7. After replacing the REC inhibiting lever (3), mount the parts in the reverse order of removal.

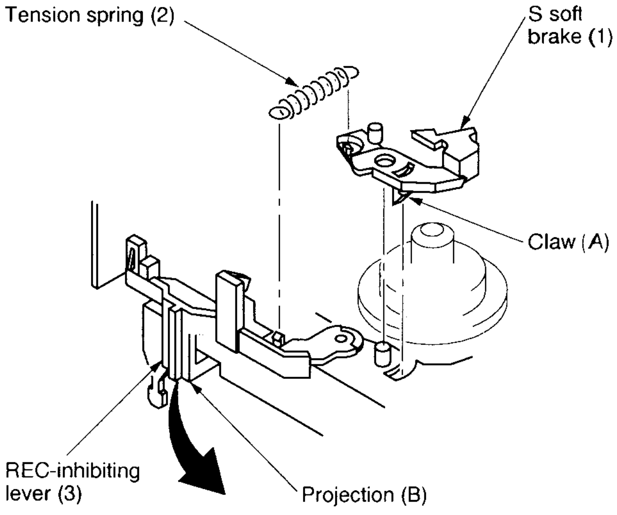

Tension spring (2)
S soft brake (1)
Claw (A)
REC-inhibiting lever (3)
Projection (B)

Fig. 6-36-1

1-6-37. S, T Main Brake Assembly Replacement

1. Remove the mechanical deck from the main PC board and turn the mechanical deck upside down.
2. When replacing the T main brake assembly (2), first remove the idle kick lever (3). (Refer to item "1-6-34. Idle Arm Assembly Replacement".)
3. Remove the tension spring (4).
4. Remove the claws on the S, T main brakes (1), (2) from the mechanical deck lifting the S, T main brakes (1), (2) upward.
5. After replacing the S, T Main brake assemblies (1), (2), mount the parts in the reverse order of removal.

Note:

- When mounting the S, T main brake assemblies (1), (2) take care that both ends of the S, T main brakes (1), (2), do not touch the gear of the reel table.

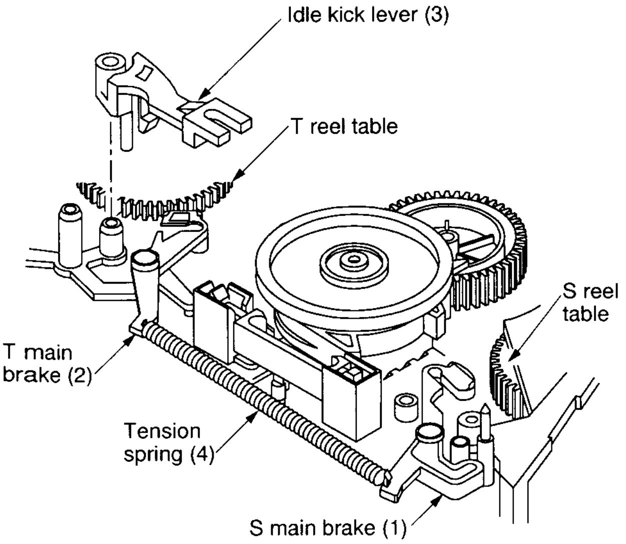

Idle kick lever (3)
T reel table
S reel table
T main brake (2)
Tension spring (4)
S main brake (1)

Fig. 6-37-1

1-6-38. S Soft Brake Replacement

1. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement.")
2. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
3. Remove the S soft brake spring (1).
4. Remove the S soft brake (2) after removing the claw (A) on the S soft brake from the mechanical deck.

Note:

- When mounting the S soft brake spring (1), take care not to deform the hook (B).
- When mounting the S soft brake (2), take care of the band brake (3).

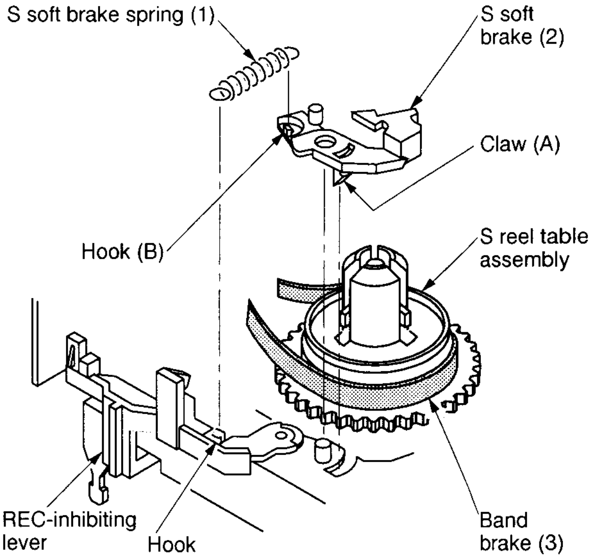

S soft brake spring (1)
S soft brake (2)
Claw (A)
Hook (B)
S reel table assembly
REC-inhibiting lever
Hook
Band brake (3)

Fig. 6-38-1

1-6-39. T Soft Brake Replacement

1. Remove the T soft brake spring (1).
2. Remove the claw (A) on the T soft brake (2) from the mechanical deck and remove the T soft brake (2).
3. After replacing the T soft brake (2), mount the parts in the reverse order of removal.

Note:

- When mounting the T soft brake spring (1), take care not to deform the hook (B).
- Take care not to touch the surface (C) on the brake pad.

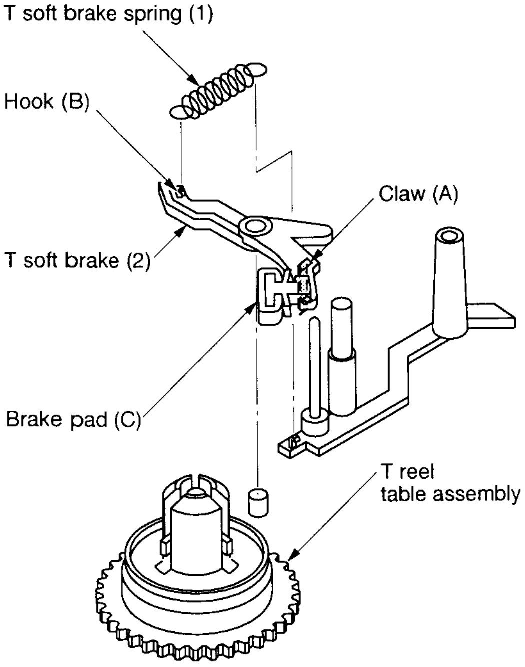

T soft brake spring (1)
Hook (B)
Claw (A)
T soft brake (2)
Brake pad (C)
T reel
table assembly

Fig. 6-39-1

1-6-40. Drive Lever Replacement

1. Remove the top bracket. (Refer to item "1-6-1. Top Bracket Replacement".)
2. Remove the cassette holder assembly. (Refer to item "1-6-2. Cassette Holder Assembly Replacement".)
3. Remove the drive arm assembly. (Refer to item "1-6-5. Drive Arm Assembly Replacement".)
4. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
5. Remove the Loading Drive Assembly. (Refer to item "1-6-29. Loading Drive Assembly Replacement.")
6. Remove the drive lever (1).
7. After replacing the drive lever (1), mount the parts in the reverse order of removal.

Note:

- Be sure to align the phase of the cam gear (2). (Refer to item 1-6-41. Cam Slider Replacement".)
- Mount the drive lever (1) so that it is positioned between the mark (A) on the mechanical deck and the outsert (B).
- Apply grease to the surface between the mark (C) on the mechanical deck and the drive lever shaft (D).

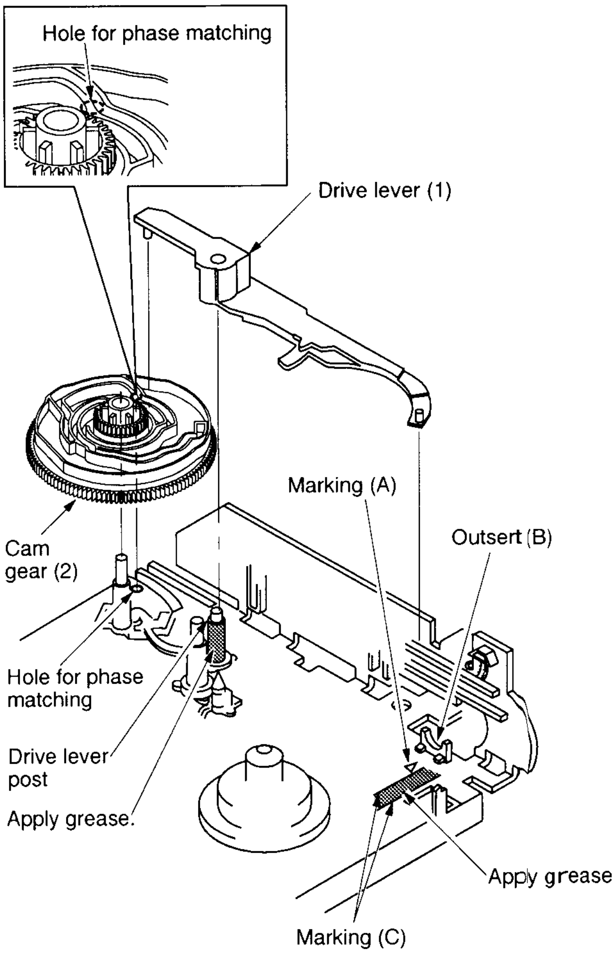

Hole for phase matching
Drive lever (1)
Marking (A)
Cam
gear (2)
Outsert (B)
Hole for phase
matching
Drive lever
post
Apply grease
Apply grease
Marking (C)

Fig. 6-40-1

1-6-41. Cam Slider Replacement

1. Remove the top bracket and the cassette holder assembly. (Refer to item "1-6-1. Top Bracket Replacement and 1-6-2. Cassette Holder Assembly Replacement".)
2. Remove the tension spring (1).
3. Turn the hook lever assembly (2) counterclockwise and turn the S soft brake (3) counterclockwise.
4. Move the cam slider (4) to the right and align the projection (A) on the mechanical deck and the cutout portion (B) on the cam slider (4).
5. Remove the claw (C) on the cam slider (4) and remove the cam slider (4) lifting the cam slider (4) upward.

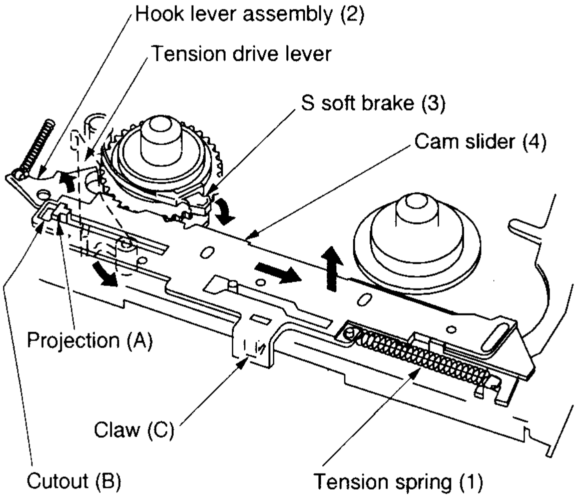

Hook lever assembly (2)
Tension drive lever
S soft brake (3)
Cam slider (4)
Projection (A)
Claw (C)
Cutout (B)
Tension spring (1)

Fig. 6-41-1

6. Apply grease on the shaded portion of a new slider for the replacement.
7. Mount the parts in the reverse order of removal. After inserting the cam slider, slide it to the left direction till it stops. (Fig. 6-26-2 shows this condition.)

Note:

- When mounting the cam slider (4), slide the tension drive lever in the direction shown by the arrow (counterclockwise).
- After completion of the replacement, confirm that the cam slider (4) can slide to left and right directions smoothly.

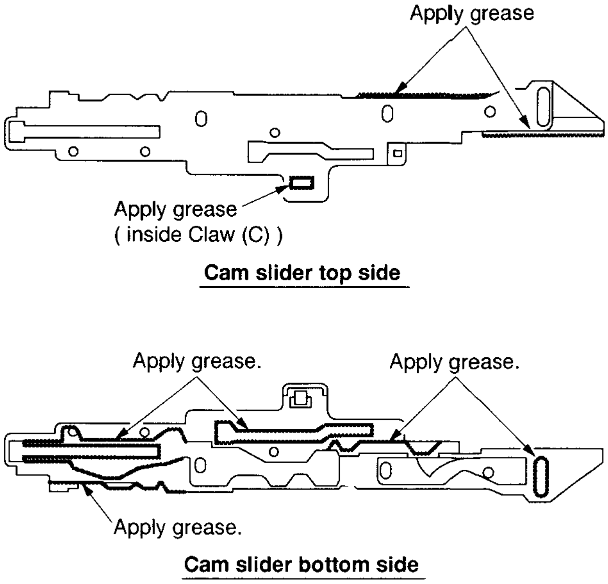

Apply grease
Apply grease
(inside Claw (C))
Cam slider top side
Apply grease.
Apply grease.
Apply grease.
Cam slider bottom side

Fig. 6-41-2

1-6-42. Idle Centering Lever Replacement

1. Remove the cam slider. (Refer to item "1-6-41. Cam Slider Replacement".)
2. Remove the claw on the idle centering lever (1) and remove the idle centering lever (1) lifting it upward.
3. After replacing the idle centering lever (1), mount the part in the reverse order of removal.

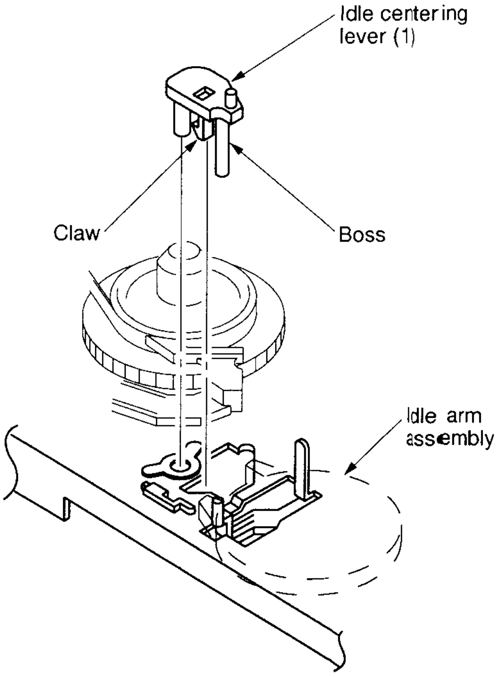

Idle centering lever (1)
Claw
Boss
Idle arm assembly

Fig. 6-42-1

1-6-43. Capstan Motor Replacement

1. Remove the reel belt (1).
2. Remove one screw (2) from the bottom of the mechanical deck, and remove the PC board (3).

Note:

- Take care not to misuse the screw with others.

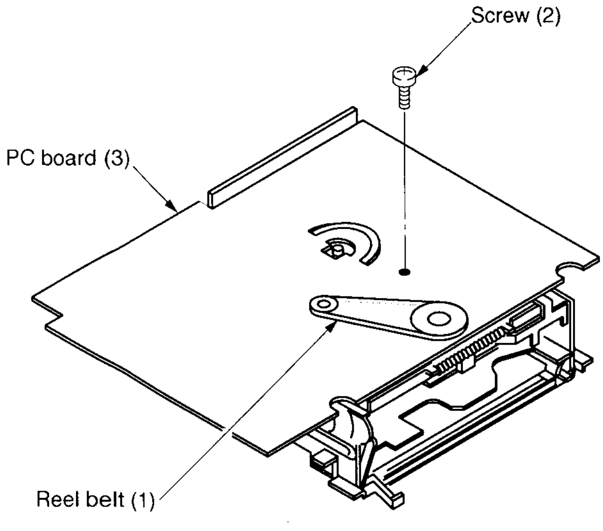

Screw (2)
PC board (3)
Reel belt (1)

Fig. 6-43-1

3. Remove the capstan motor (4) after removing three screws (5).

Note:

- Take care not to drop the capstan motor.

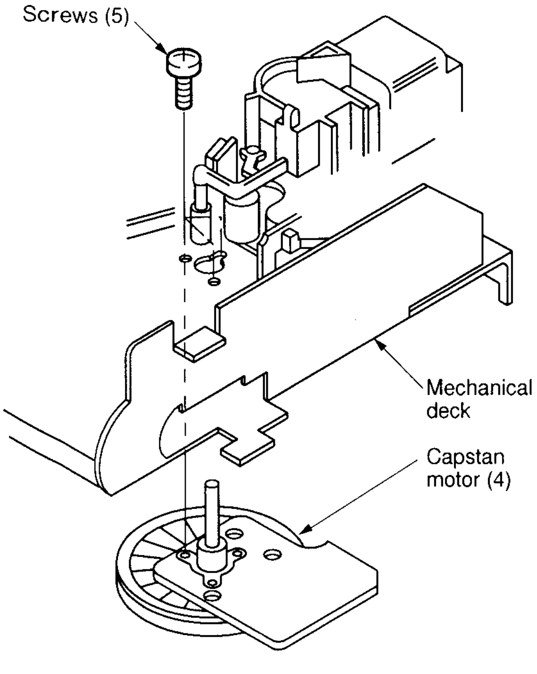

Screws (5)
Mechanical deck
Capstan motor (4)

Fig. 6-43-2

4. Take care not to damage and scratch the motor itself, and mount the capstan motor (4) fitting the hole (A) on the mechanical deck and the hole (B) on the capstan motor (4).

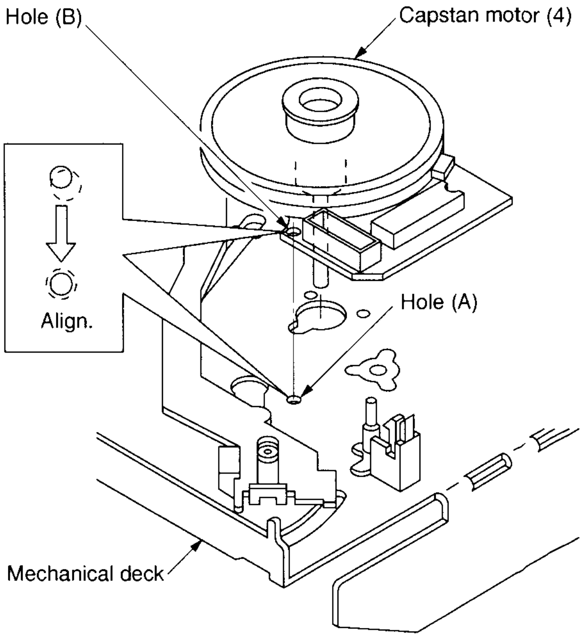

Hole (B)
Capstan motor (4)
Align.
Hole (A)
Mechanical deck

Fig. 6-43-3

5. Mount the capstan motor (4) with three screws (5) viewing from the top side of the mechanical deck.

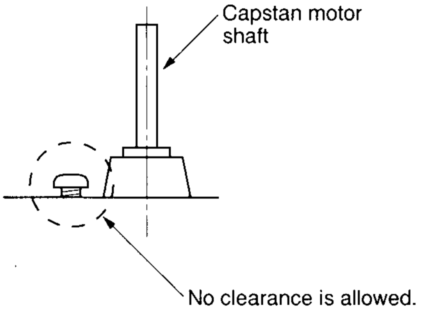

Capstan motor shaft
No clearance is allowed.

Fig. 6-43-4

Note:

- Do not use once-removed screws again.
- Take care that no clearance is allowed when securing three screws.

6. After replacement, mount the parts in the reverse order of removal.

Note:

- In this case, take care not to twist the reel belt and stick the grease or etc. on it.

7. After replacing, perform the adjustment according to the tape transport adjustment procedures.

1-6-44. S-VHS Switch Assembly Replacement (S-VHS model only)

1. Slide the cassette holder assembly (1) until the screw (2) can be seen from the hole on the top bracket (3).
2. Insert a screwdriver from the hole provided on the top bracket (3) and secure the screw (2).
3. Remove the S-VHS switch assembly (4) upward.
4. After completion of the replacement, mount the parts in the reverse order of removal.

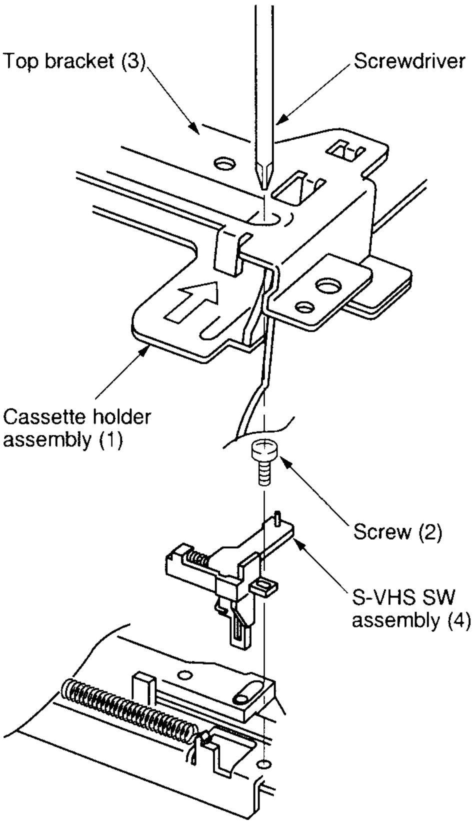

Top bracket (3)
Screwdriver
Cassette holder assembly (1)
Screw (2)
S-VHS SW assembly (4)

Fig. 6-44-1

1-7. Check and Adjustment

1-7-1. Check of Tension Pole Position

1. Turn the worm wheel counterclockwise after removing the cassette holder assembly on the front loading mechanism, and set the cam gear at playback position.
2. Turn the S reel table assembly (1) clockwise slowly.
3. Adjust the adjuster (3) counterclockwise from the position shown in Fig. 6-23-1 so that the clearance between the left end of the tension lever assembly (2) and the left side of the mechanical deck becomes 7.5 ± 1 mm.

Note:

- There is a long mark at the position of 7.5 mm from the round surface of the mechanical deck. Make sure the position of the mark when adjusting.

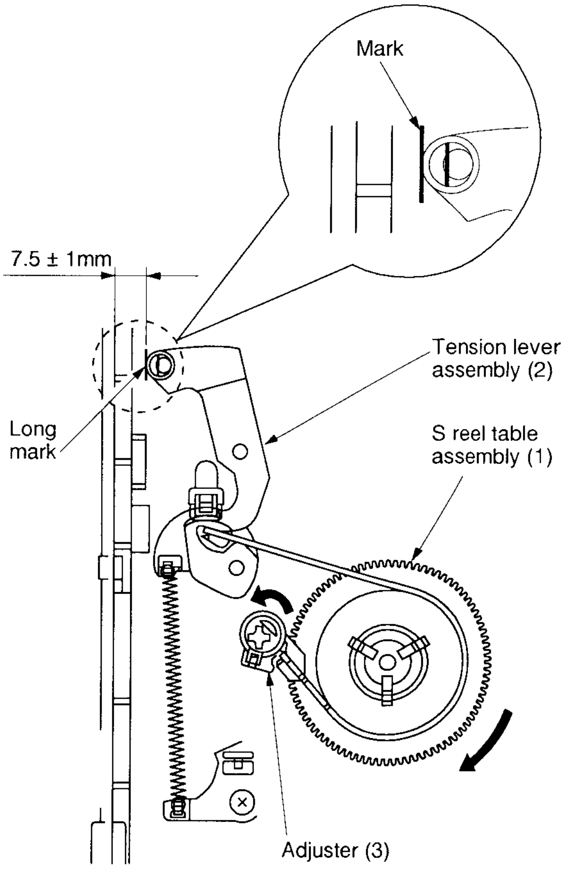

Mark
7.5 ± 1mm
Tension lever assembly (2)
Long mark
S reel table assembly (1)
Adjuster (3)

Fig. 7-1-1

1-7-2. Reel Torque Check

(1) Reel torque

1. REVIEW mode (supply side)

   Poor torque may not wind the tape. On the other hand, excessive torque will cause damage to the tape during REVIEW mode.

2. Record/Playback mode (take-up side)

   Too little torque does not rewind the tape to the end. If too large torque, the tape may be stretched by excessive tension.

3. Inspection

   Rewind the torque cassette to the end, then check the torque values shown below:

Review	15.95 ± 3.65 mN•m (162.5 ± 37.5 g•cm)
Record/Playback	6.85 ± 2.45 mN•m (70 ± 25 g•cm)

   For checking method, refer to the following item (2).

(2) Reel torque and back tension check

1. First, record a TV broadcast program on the entire torque cassette tape (KT-300NR) in the SP mode.
2. Load the torque cassette tape (KT-300NR) in the VTR and feed it forward until the end of the tape, before proceeding with measurement.
3. Set the VTR to the REVIEW mode and feed the tape for about 15s, and then make sure the take-up torque described above is obtained while observing the left torque meter.
4. After completion of step 3), feed forward to tape start position and set the VTR to the PLAY mode and feed the tape for about 30s. Read the right torque meter and check the torque described above is obtained.
5. If the review torque and playback torque are out of limit, replace the clutch assembly.
6. When the S reel table assembly, the T reel table assembly and the idle arm assembly are replaced, perform the reel torque check.

<Precautions for Use of Torque Cassette (KT-300NR)>

1. Before loading a torque cassette in a VTR, always remove tape slack. The tape slack can be removed by rotating the reel to its take-up direction. (The tape tends to slack when there is no reel brake actions.)
2. When the torque cassette is loaded, confirm followings:
   - Make sure the tape does not ride up or over the No. 8 cap. If it does, do not eject the tape but return the tape to its correct position, taking care not to damage the tape.
   - Make sure the tape is not slackened. If slackened, operate the VTR in FF or REW mode and then stop the tape. Then make sure the tape is not slackened again.
   - After above confirmation, proceed to the reel torque adjustment and confirmation.
3. Caution for removal of torque cassette
   - When removing the torque cassette from the VTR, set the VTR to the STOP mode and wait for several seconds. Then, make sure the tape is not slackened. Push the EJECT button to remove the cassette.
4. If the previous precautions 1), 2) and 3) are not performed properly, the tape may be damaged and correct measurements can not be performed.
5. Do not use worn out or damaged tape, if used they may damage video heads on the cylinder. In such a case always replace the tape with a new one. The replacement tape is of E-180, 10 m in length.

1-7-3. Tape Transport System

The tape transport system has been precisely adjusted in the factory, so no check and alignment are necessary except the followings:

- Noises observed on the screen
- Tape damage
- Parts, shown in the adjustment procedures for the tape transport system were replaced.

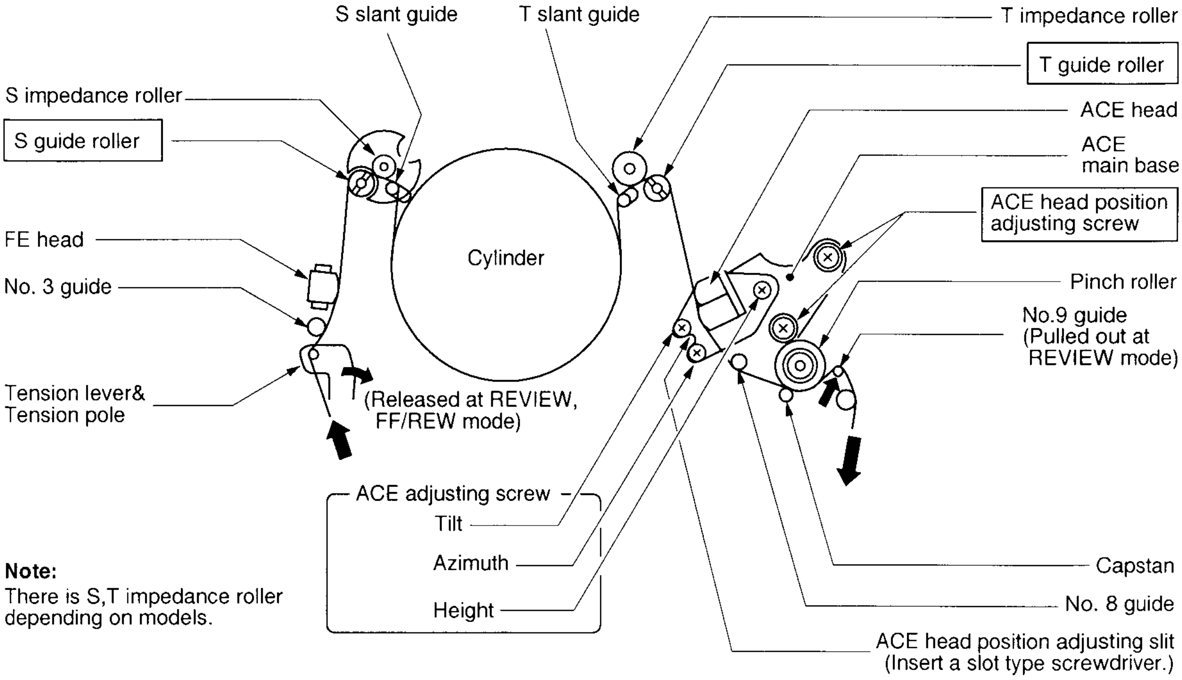
Electrical signal output terminal required for adjustment differs depending upon the models. Refer to the test point location in the Electrical Adjustment Section.

(1) Location of tape transport adjustment

<Adjustment reference>

Lower flange height of No. 8 guide is used as the basic reference for the transport adjustment. To keep height of the No. 8 guide, do not apply excessive force onto the main base to prevent the main base from deformation.

Rectangles shown in Figs. 7-3-1, 7-3-2 show the adjusting locations.


S slant guide
T slant guide
T impedance roller
T guide roller
S impedance roller
S guide roller
ACE head
ACE main base
ACE head position adjusting screw
FE head
Cylinder
No. 3 guide
Pinch roller
No.9 guide (Pulled out at REVIEW mode)
Tension lever& Tension pole
(Released at REVIEW, FF/REW mode)
ACE adjusting screw
Tilt
Azimuth
Height
Capstan
No. 8 guide
ACE head position adjusting slit (Insert a slot type screwdriver.)

Note:
There is S,T impedance roller depending on models.

Fig. 7-3-1 Tape travel diagram

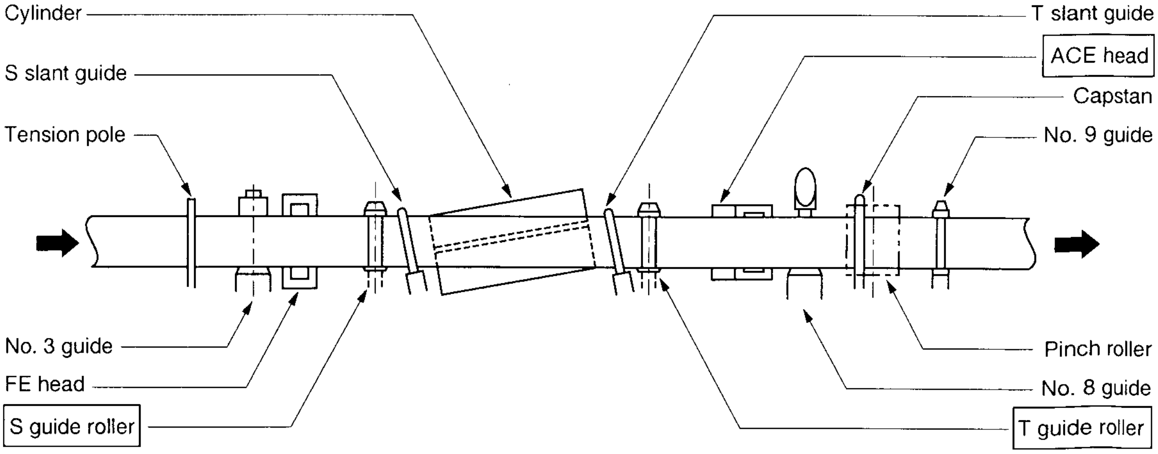
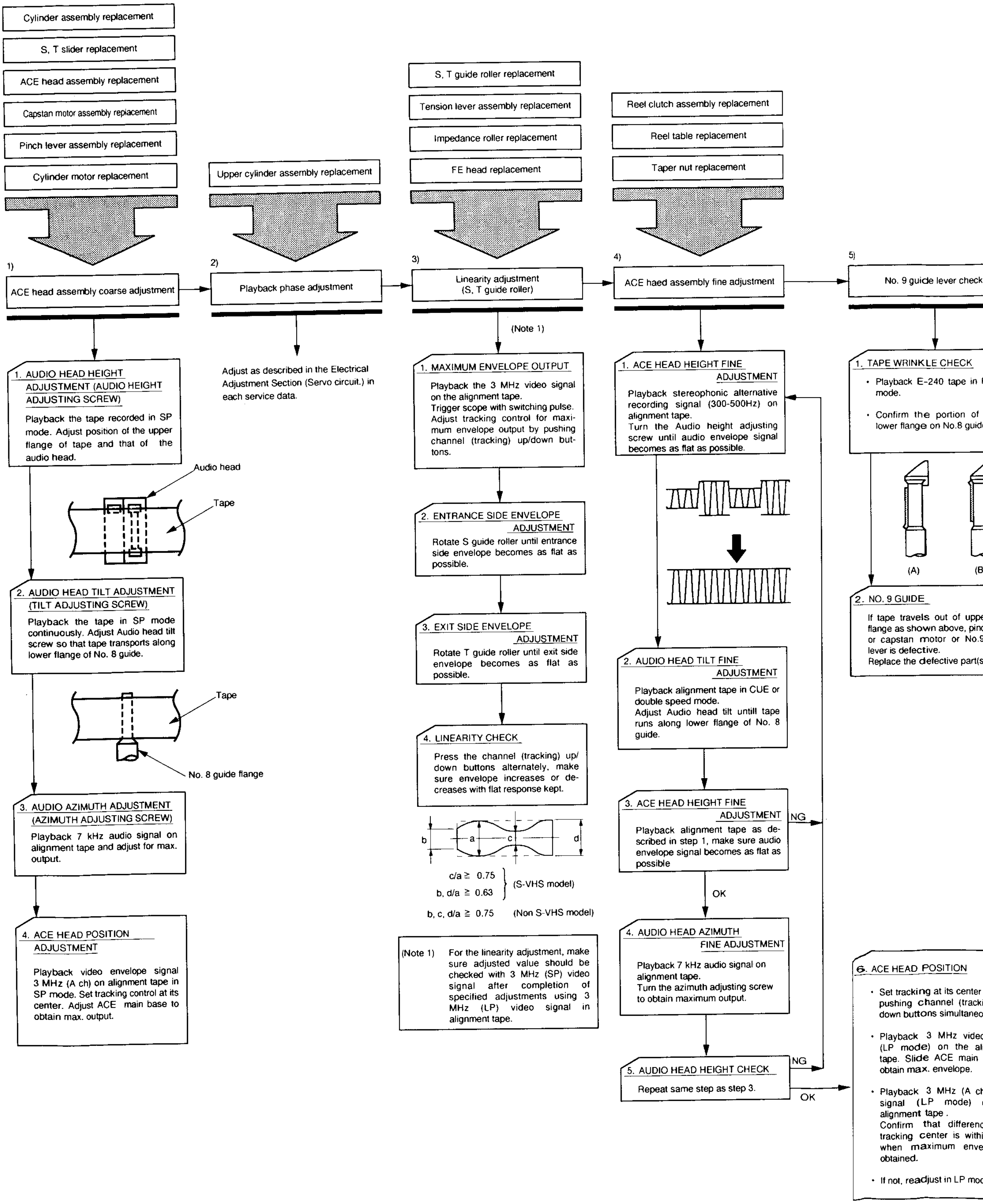

Cylinder
T slant guide
S slant guide
ACE head
Capstan
Tension pole
No. 9 guide
No. 3 guide
Pinch roller
FE head
No. 8 guide
S guide roller
T guide roller

Fig. 7-3-2 Location of tape transport adjustment

(2) Tape transport system adjustment flow chart



Cylinder assembly replacement
S, T slider replacement
ACE head assembly replacement
Capstan motor assembly replacement
Pinch lever assembly replacement
Cylinder motor replacement

1) ACE head assembly coarse adjustment

1. AUDIO HEAD HEIGHT ADJUSTMENT (AUDIO HEIGHT ADJUSTING SCREW)

Playback the tape recorded in SP mode. Adjust position of the upper flange of tape and that of the audio head.

2. AUDIO HEAD TILT ADJUSTMENT (TILT ADJUSTING SCREW)

Playback the tape in SP mode continuously. Adjust Audio head tilt screw so that tape transports along lower flange of No. 8 guide.

3. AUDIO AZIMUTH ADJUSTMENT (AZIMUTH ADJUSTING SCREW)

Playback 7 kHz audio signal on alignment tape and adjust for max. output.

4. ACE HEAD POSITION ADJUSTMENT

Playback video envelope signal 3 MHz (A ch) on alignment tape in SP mode. Set tracking control at its center. Adjust ACE main base to obtain max. output.

Upper cylinder assembly replacement

2) Playback phase adjustment

Adjust as described in the Electrical Adjustment Section (Servo circuit.) in each service data.

S, T guide roller replacement
Tension lever assembly replacement
Impedance roller replacement
FE head replacement

3) Linearity adjustment (S, T guide roller)

(Note 1)

1. MAXIMUM ENVELOPE OUTPUT

Playback the 3 MHz video signal on the alignment tape.
Trigger scope with switching pulse.
Adjust tracking control for maximum envelope output by pushing channel (tracking) up/down buttons.

2. ENTRANCE SIDE ENVELOPE ADJUSTMENT

Rotate S guide roller until entrance side envelope becomes as flat as possible.

3. EXIT SIDE ENVELOPE ADJUSTMENT

Rotate T guide roller until exit side envelope becomes as flat as possible.

4. LINEARITY CHECK

Press the channel (tracking) up/down buttons alternately, make sure envelope increases or decreases with flat response kept.

c/a ≧ 0.75 } (S-VHS model)
b, d/a ≧ 0.63 }
b, c, d/a ≧ 0.75 (Non S-VHS model)

(Note 1) For the linearity adjustment, make sure adjusted value should be checked with 3 MHz (SP) video signal after completion of specified adjustments using 3 MHz (LP) video signal in alignment tape.

Reel clutch assembly replacement
Reel table replacement
Taper nut replacement

4) ACE haed assembly fine adjustment

1. ACE HEAD HEIGHT FINE ADJUSTMENT

Playback stereophonic alternative recording signal (300-500Hz) on alignment tape.
Turn the Audio height adjusting screw until audio envelope signal becomes as flat as possible.

2. AUDIO HEAD TILT FINE ADJUSTMENT

Playback alignment tape in CUE or double speed mode.
Adjust Audio head tilt untill tape runs along lower flange of No. 8 guide.

3. ACE HEAD HEIGHT FINE ADJUSTMENT

Playback alignment tape as described in step 1, make sure audio envelope signal becomes as flat as possible

4. AUDIO HEAD AZIMUTH FINE ADJUSTMENT

Playback 7 kHz audio signal on alignment tape.
Turn the azimuth adjusting screw to obtain maximum output.

5. AUDIO HEAD HEIGHT CHECK

Repeat same step as step 3.

5) No. 9 guide lever check

1. TAPE WRINKLE CHECK

- Playback E-240 tape in
mode.
- Confirm the portion of
lower flange on No.8 guid

2. NO. 9 GUIDE

If tape travels out of uppe
flange as shown above, pin
or capstan motor or No.9
lever is defective.
Replace the defective part(s

6. ACE HEAD POSITION

- Set tracking at its center
pushing channel (tracki
down buttons simultaneo
- Playback 3 MHz vide
(LP mode) on the al
tape. Slide ACE main
obtain max. envelope.
- Playback 3 MHz (A c
signal (LP mode)
alignment tape .
Confirm that differen
tracking center is withi
when maximum enve
obtained.
- If not, readjust in LP mod

leview

ıpper/

/lower
ı lever
guide

osition
g) up/
sly.

signal
nment
ase to

video
ı the

from
3 ms
pe is

6) Check for transitional operation

1. Playback 3 MHz video signal (LP mode) in alignment tape and set review mode.

2. Change mode from review to play and check entrance side envelope rises within 3s. Check entrance side envelope rised within 3s, when mode is changed from slot-in to play.

OK → 7)

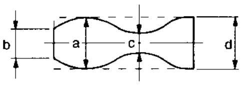
NG

3. Adjust S guide roller to readjust linearity.

4. Check step 2 and 3 if no good, replace S slider assy or tension lever.

7) Recorded & reproduced envelope check

- Records signals in SP & LP modes, using E-180, E-240 tape and playback them to check envelopes.



c/a ≧ 0.75 }
b, d/a ≧ 0.63 } (Non S-VHS model)

b, c, d/a ≧ 0.75 (S-VHS model)

8) Tape damage check

- Run E-240 tape in each mode and check there is no damage at each guide.

Playback mode
- Guide roller section damage → Back to step 3) linearity adjustment. (or Slider assembly replacement)
- Damage at No.8 guide brush → Back to step 1) ACE head assembly coarse adjustment. (or Pinch lever replacement)
- Damage at No.1 guide lower flange → Back to step 6) cheek for transitional operation. (or Tension lever replacement)

Review
- Damage at No.8 guide flange → Back to step 5) No.9 guide lever check or 1) ACE head assembly coarse adjustment. (Pinch lever, No.9 lever, Capstan motor replacement)
- Damage at guide roller section → Back to step 3) linearity adjustment. (or Slider assembly replacement)

Frame advance mode
- Damage at No.8 guide flange → Back to step 3) linearity adjustment.

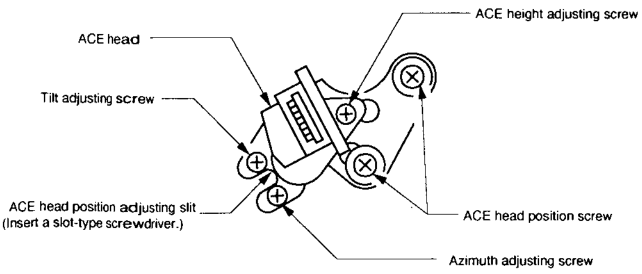
9) Checks for Hi-Fi models only.

AFM envelope output max. point check

Playback 3 MHz video signal. 400 Hz AFM signal in alignment tape ST-C7 in SP mode.

Check video envelope max. point (A ch).

Check control pulse phase difference is within ±3 ms from that point to AFM envelope max. point.



ACE head
Tilt adjusting screw
ACE head position adjusting slit
(Insert a slot-type screwdriver.)
ACE height adjusting screw
ACE head position screw
Azimuth adjusting screw

* VTR applied SP mode only, Use 3 MHz (A ch) video signal (SP mode) instead of 3 MHz video signal (LP mode).

b. ACE tilt adjustment

1. Observe the lower flange of No. 8 guide. If any wrinkle is observed, turn the ACE tilt adjusting screw counterclockwise until the wrinkle disappears.
2. If a gap is observed between the lower flange of No. 8 guide and the lower edge of tape, turn the ACE tilt adjusting screw clockwise until the tape travels along the lower flange.

Note:

- This adjustment is performed easily in SP mode playback, double speed playback mode or CUE mode.

c. Audio head height check

1. Play back the stereophonic alternative recorded 300 – 500 Hz audio signal as described in the step 4)-a, and check if the audio envelope is flat. If not, repeat the adjustment described in step 4)-a again.

d. Audio azimuth adjustment

1. Play back the 400 Hz, 7 kHz audio signal on the alignment tape.
2. Turn the ACE azimuth adjusting screw until the maximum audio output is obtained.

e. Audio head hight check

1. Play back the alignment tape desribed in step 4)-a and check if the audio envelope is flat. If not, repeat the adjustment described in step 4)-a.

Note:

- If there is no alignment tape (ST-C6, ST-C7), perform the audio height alignment using the current alignment tape at this adjustment step.

1. Playback the 400 Hz audio signal (SP mode) on the alignment tape.
2. Turn each three alignment screw of the ACE head to the same direction in 45 degrees steps evenly so that the audio output level becomes maximum.
3. Perform the confirmation and adjustment for the tilt and the azimuth again.

f. ACE head postion adjustment

1. Play back the 3 MHz (LP mode) on the alignment tape.
2. Push the channel (tracking) up/down buttons simultaneously and reset the tracking at its center position.
3. Trigger the oscilloscope with the video switching pulse and observe the video envelope waveform.
4. Slide the ACE main base until the maximum envelope output is obtained as described in ACE head position coarse adjustment.
5. Play back the 3 MHz video signal (SP mode) on the alignment tape.
6. Make sure the envelope output is maximum when the tracking control is placed at its center position.

   If no envelope output is obtained with the tracking control set to the center position, again adjust it for maximum envelope output in SP and LP modes. When envelope output is maximum in the LP mode at the tracking center, difference with the case in the SP mode is within 3 ms.
7. Tighten the ACE head position fixing screw and secure the ACE main base.

g. After completion of ACE head fine adjustment, apply screw lock to two screws (tilt, azimuth adjusting screws) in front of the ACE head.

5) No. 9 guide lever adjustment

1. Set the VTR to Cue mode with E-240 tape (at beginning portion) loaded. Switch the Cue mode to the review mode when the tape has been rewound into the T-reel table to some extent.
2. Check tape wrinkle at the upper and lower flange of No. 8 guide. Check the tape does not come off from the flange while running. If the tape comes off from the flange, replace the pinch lever, capstan motor or No. 9 guide lever since the part(s) is (are) defective.

Note:

- Modify the lid of the cassette for the alignment tape E-240 previsously so that the alignment is performed easily.

6) Check for transitional operation from Review to Play, slot-in to play

1. Play back the 3 MHz video signal (LP mode) on the alignment tape in Review mode and observe the video envelope with the oscilloscope.
2. Switch the Review mode to the Play mode. When switched to the Play mode, make sure the entrance side envelope comes to an approximate steady state within 3s as shown in Fig. 7-3-9.

If it does not rise within 3s, take the following steps starting 4).

3. Switch the cassette slot-in mode to the Play mode. As in item 2), if it does not rise within 3s, adjust as follows.

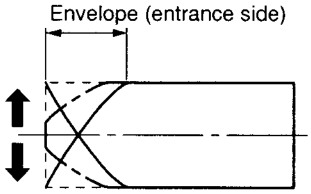


Fig. 7-3-9 Video envelope rising when operation mode is switched from review to play mode

4. Adjust the S guide roller and perform the linearity adjustment again.
5. Check above items 2) and 3) to see that the video envelope rises within 3s. If not, S slider assembly or the tension lever is damaged. Replace either (or both) of them.

Note:

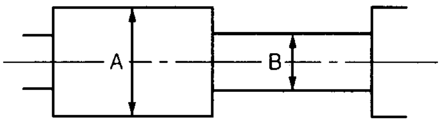
- If the rising characteristic is poor in Review mode, screen noise may occur in synchronous editing recording. Perform the adjustment carefully.

7) Envelope check

1. Make recordings and play back the tapes (E-180 and E-240) in SP and LP modes and make sure the playback output envelope meets the specifications shown in Fig. 7-3-5.
2. In playback the tape (with a E-180), the video envelope should meet the specification as shown in Fig. 7-3-10.

Note:

- Check for both modes, SP and LP. Also check for AFM envelope when using a Hi-Fi model.



- B/A ≧ 0.55
- B ≧ 120mV

Fig. 7-3-10 Envelope output and output difference

3. If the performance does not meet both specifications above 1 and 2 above, replace the upper cylinder assembly.
4. Set the VTR to Rec mode (LP) with the E-180 tape loaded (at the beginning part) and check operation of the synchronous editing recording.
5. If picture noises are observed at the starting position of the editing, perform "6) Check for transitional operation from Review to Play, slot-in to play".

8) Tape wrinkle check

1. Playback the E-240 tape in the normal Play mode, CUE mode, Review mode and the frame advance mode, and check each guide for wrinkle.
2. If excessive tape wrinkle is observed at the mode shown below, perform the associated adjustments also shown below. (The parts described in ( ) may need to replace.)

a. Playback mode

Tape wrinkle at the S, T-guide rollers section

Item 3) Linearity adjustment
(Slider assembly)

Tape wrinkle at No. 8 guide flange

Item 1) ACE head assembly coarse adjustment
(Pinch roller)

Tape wrinkle at lower flange of No. 1 guide

Item 6) Check for transitional operations from Review to Play, and Slot-In to Play
(Tension lever)

b. Review mode

Tape wrinkle at No. 8 guide

Item 1) ACE head assembly coarse adjustment
(Pinch lever, No. 9 guide lever, capstan motor)

Tape wrinkle at the guide rollers

Guide roller adjustment (Slider assembly)

c. Frame advance mode

Tape wrinkle at No. 8 guide

Item 3) Linearity adjustment
(Pinch lever, capstan motor)

9) Maximum AFM envelope output point check (Hi-Fi model)

1. Playback the SP mode 3 MHz video signal and the 400 Hz AFM signal on the alignment tape.
2. Trigger the oscilloscope with the video switching pulse, adjust the tracking control and check the control pulse phase at the maximum video envelope (A ch) output point.
3. Make sure the control pulse phase difference among each maximum point of AFM envelope, Ach and Bch is within ± 3 ms with the above point used as the basic reference.

Note:

- If the phase difference exceeds 3 ms, replace the upper cylinder.

2. ELECTRICAL ADJUSTMENT

<Test equipment required>

Adjustment will be performed with the following test equipment.

1. Color TV (Monitor)
2. Oscilloscope, 2 CHs, 15 MHz or higher with delay system
3. Frequency counter (7 digits or higher)
4. Millivoltmeter
5. Digital voltmenter
6. Tester (20 kΩ/V)
7. Audio generator
8. Audio attenuator
9. Alignment tapes
   Part code: ST-C6: 70909409, ST-C7: 70909410
10. Alignment screw driver (jig)
11. Color pattern generator
12. Video sweep generator

<Color bar signal>

Color bar signals of 75% recorded on the alignment tapes are shown in Fig. 2-1-1.

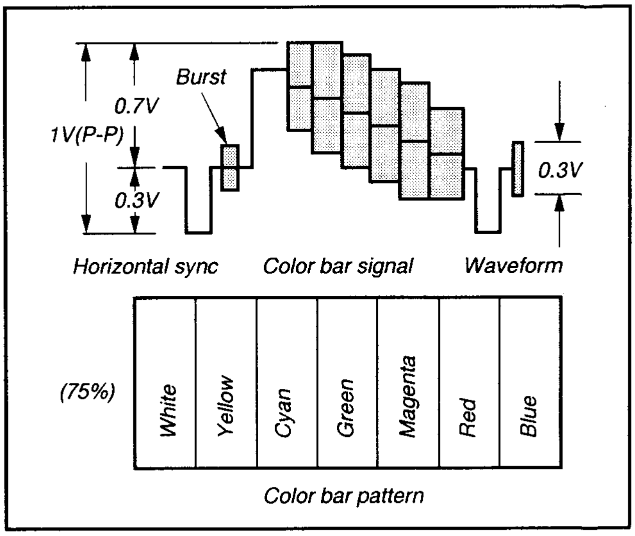

Burst
0.7V
1V(P-P)
0.3V
0.3V
Horizontal sync
Color bar signal
Waveform
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Color bar pattern

Fig. 2-1-1

<Specified input and output levels, and impedance>

Video input:	Negative sync, standard composite video siganl 1 V(p-p), 75Ω
Video output:	Same as the video input 1 V(p-p), 75Ω
Audio input:	308 mV(rms), more than 47 kΩ (phono type), more than 10 kΩ (21 pin type)
Audio output:	308 mV(rms), less than 4.7 kΩ (phono type), less than 1.0 kΩ (21 pin type)

<Alignment sequence>

Recorded the alignments in the sequence as shown in Fig. 2-1-2.

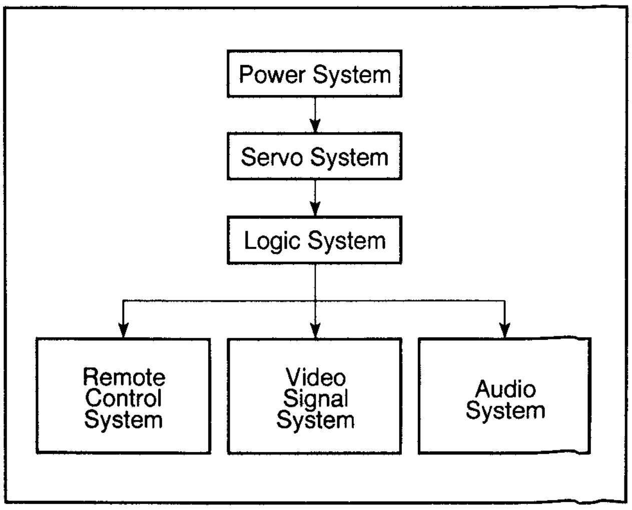

Power System
Servo System
Logic System
Remote Control System
Video Signal System
Audio System

Fig. 2-1-2

Alignment tape specifications

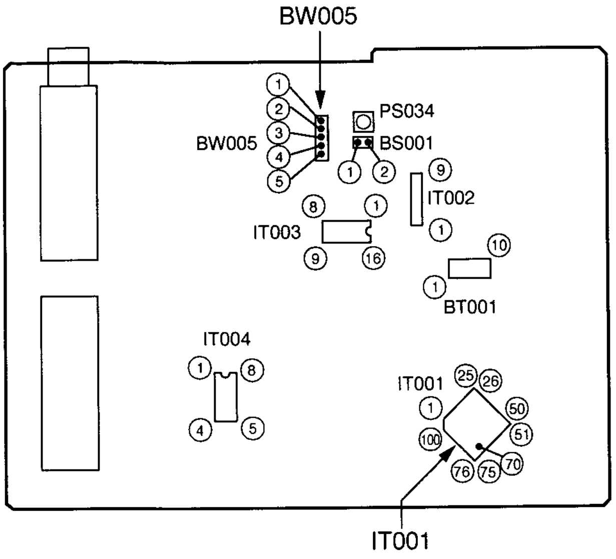
[1] ST-C6

Segment	System	Playback Time (min)	Video Signal	Audio Signal	Applications
1	PAL & SECAM	10	Mono Scope	1 kHz	Playback phase check, audio level check
2	PAL & SECAM	5	3 MHz A ch	400 Hz and 7 kHz	ACE head position adjustment, ACE head azimuth adjustment, Linearity adjustment
3	PAL & SECAM	5	3 MHz A ch	1 kHz (stereo)	ACE head position adjustment, ACE head height adjustment, Linearity adjustment
4	PAL	5	Color bar	3 kHz	Video and Sound checks
5	SECAM	5	Color bar	3 kHz	Video and Sound checks
6	MESECAM	5	Color bar	3 kHz	Video and Sound checks
7	NTSC	5	Color bar	1 kHz	Video and Sound checks

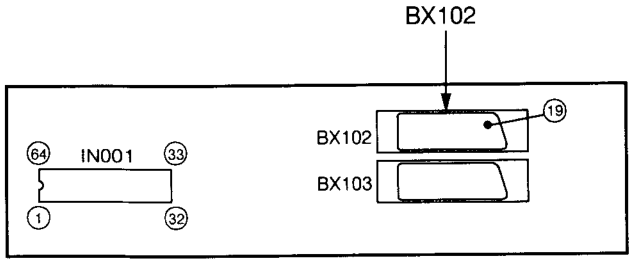
[2] ST-C7

Segment	System	Playback		Video Signal	Audio Signal	Applications
		Time (min)	Mode			
1	PAL	5	LP	3 MHz A ch	500 Hz (stereo)	ACE head position adjustment, ACE head height adjustment, Linearity adjustment
2	PAL	3	LP	Color bar	3.2 kHz	LP mode operation check, ACE head azimuth check and adjustment
3	PAL	3	SP	Color bar	AFM 400 Hz	SP mode operation check, AFM check
4	PAL & SECAM	5	SP	3 MHz A ch	AFM 400 Hz	AFM tracking checks
5	SECAM	5	LP	3 MHz A ch	No signal	Linearity adjustment
6	SECAM	3	LP	Color bar	No signal	LP mode operation check
7	SECAM	3	SP	Color bar	AFM 400 Hz	SP mode operation check, AFM check

2-1. Servo Circuit


BW005
BW005
1
2
3
4
5
PS034
BS001
1
2
9
IT002
1
8
1
IT003
9
16
10
1
BT001
IT004
1
8
4
5
IT001
25
26
1
50
100
51
76
75
70
IT001

Main PC Board


BX102
BX102
BX103
19
64
IN001
33
1
32

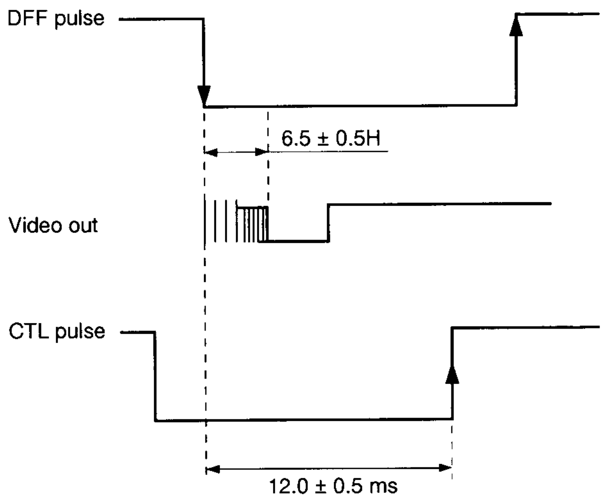
Terminal PC Board

2-1-1. Playback Phase (PG) Adjustment

Test point: BW005, Pin 19 of BX102 (Video out)

Test equipment: Oscilloscope

1. Play back the alignment tape. Confirm that phase difference between the fall of the DFF pulse (pin 3 of BW005) and the rise of CTL pulse (pin 4 of BW005) is 12 ± 0.5 ms.
2. Further, observe the envelope (pin 1 of BW005) waveform, and confirm that the ACE head position adjustment and linearity adjustment have been made, and C-SYNC (pin 70 of IT001) is being input during playback.
3. Set the VTR to the STOP mode.

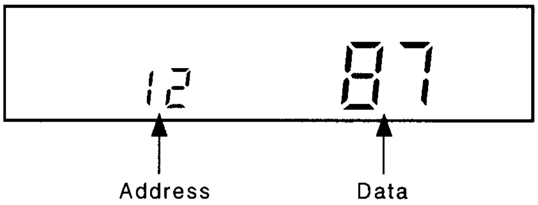

DFF pulse
6.5 ± 0.5H
Video out
CTL pulse
12.0 ± 0.5 ms

4. Press the unit's channel up/down buttons simultaneously for more than 5s.
5. Afterwards, within 2s, press the PLAY button on the remote control unit.
6. The automatic adjustment will be made for about 10s, all the displays will blink. If the automatic adjustment is not carried out, confirm that the alignment tape has a safety tab or not, and redo from the step 3.
   1) When adjustment has been completed:
   The display will blink for 10s, stop blinking and return to the normal display in the STILL mode, then it shifts to the playback display in the playback mode.
   2) When adjustment fails:
   It goes into the STOP mode.
7. Confirm that the play indicator is displayed, and confirm that the rising and falling edge of the SW pulse is 6.5 ± 0.5H from the V-sync front edge of the video signal.

2-1-2. When IT004 is Replaced

When IT004 is replaced, the data in the VTR is required to memorize in the new one. So perform the following procedures.

1. Press the channel up/down buttons on the VTR simultaneously for more than 5s while the display blinks and the unit is in the power off mode.
2. And then within 2s, press the CANCEL button on the remote control unit.
3. After displaying the address at the channel display area and the data at the minute display area, set the address to 12 using the channel up/down buttons on the remote control unit.
   Next, set the data to 87 using the FF/REW buttons on the remote control unit. The data goes up using FF button and down using REW button.

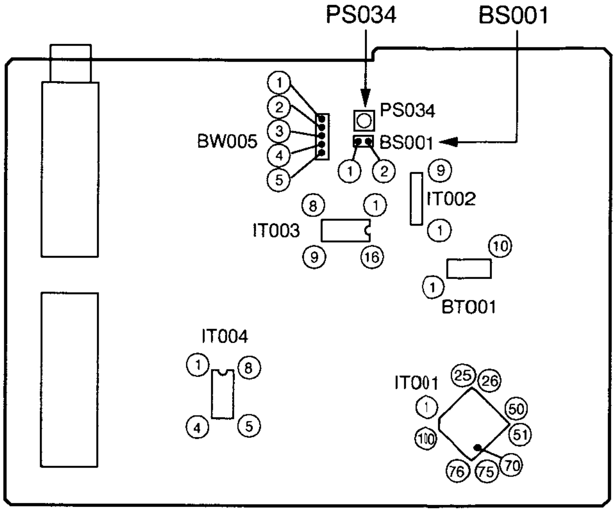


4. Set each address and data in the table below following the description above.

Address	Data
24	0A
25	03
26	15
27	0A

5. Perform the adjustment described in the item "2-1-1. Playback Phase (PG) Adjustment".
6. Pull out the power cord plug from the AC outlet once and insert the power cord plug into the AC outlet again.
7. Perform the channel presetting as the IT004 replaced has no channel data.

2-2. Audio Circuit



Main PC Board

2-2-1. Bias Level Adjustment

Test point: Pins 1 and 2 of BS001

Test equipment: Millivoltmeter

Adjusting point: PS034

1. Set the VTR to record mode.
2. Connect pin 2 to the millivoltmeter and pin 1 to ground.
3. Adjust PS034 to obtain 2.6 ± 0.1 mV(rms).

2-3. Self Diagnosis Function

2-3-1. Outline

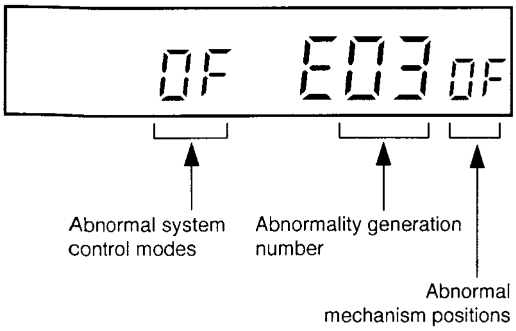
When a tape running stops or the VTR enters the power OFF mode, etc. due to some abnormality, the abnormality is stored in the EEPROM and displayed on the display tube.

2-3-2. Storing abnormal modes

- The abnormality is classed into 5 groups, and the abnormality number, system control mode, and the mechanism position at which the abnormality occurred are stored in the EEPROM.
- The writing timing is just after the abnormality occurred.

2-3-3. Abnormality mode display

- Press the CH UP and CH DOWN buttons on the VTR simultaneously for more than 5s.
- And then within 2s, press the STILL button on the remote control.
- The system control mode at which the abnormality occurred is displayed at the channel display area, "E" is displayed at the hour digit, abnormality generation number is displayed at the minute digit, and the mechanism position is displayed in the second digit position.
- The abnormality mode is displayed regardless of the power on off.


0F E03 0F
Abnormal system control modes
Abnormality generation number
Abnormal mechanism positions

- When the Counter Reset button is pressed in the display period, the abnormality display data is initialized and "-" is displayed.

The data displayed are as follows:

Abnormality generation number

01	Cylinder stop
02	Reel abnormality (take up)
03	Reel abnormality (supply)
04	Abnormal slot in/ slot out
05	Abnormal loading

Abnormal system control modes

00	Standby
01	Stop
02	Rewind
03	Review
04	FF
05	Cue
06	Playback
07	Still, slow playback
08	X2 speed
09	Unloading stop
0A	Reverse playback
0b	Still in reverse playback, Reverse slow playback
0C	Recording
0d	Record pause
0E	Power off eject
0F	Eject
10	Short FF
11	Short REW

Abnormal mechanism positions

01	F/L out
03	F/L down
05	Loading/unloading
07	Reverse rotation with pinch roller ON
09	Playback with pinch roller ON
0b	Stop with main brake ON
0d	FF/REW
0F	Position detection impossible

Positions 0, 2, 4 exist as mechanism positions.
For example, 8 shows a position between 7 and 9 (between playback position and review position).

2-3-4. Cylinder rotation time display

(1) Outline

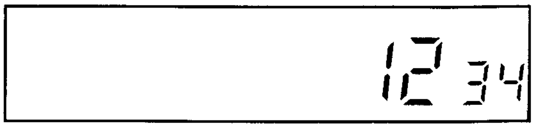
All the time for which the cylinder is ON is counted, memorized on EEPROM, and indicated on the display tube.

(2) Display method

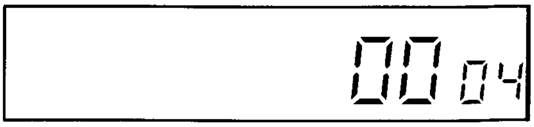
- Press the "CH UP" and "CH DOWN" button on the main unit for more 5 sec. at the same time.
- Next, within 2 sec. press the "STOP" button on the remote control.
- The cumulative operation time of the cylinder will be displayed for 30 sec. The time unit is an hour.

(3) Example of display

- In case of 1234 hours.



- In case of 4 hours.



2-4. 3DNR Module Troubleshooting Flow Chart

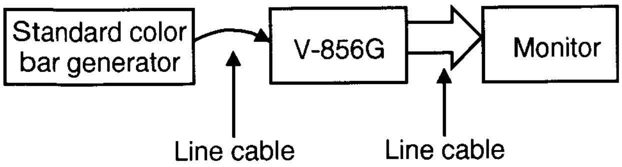
3DNR module (HR001) is checked with the following procedures, and if some defects are found, replace the module with new one.

2-4-1. Example of operation check procedure

1) Preparing equipments

- V-856G
- Standard color bar generator
- Alignment tape

2) Connection procedure



3) Operation check procedure

Turning [3DNR] off. --> Playback the tape which the color bar signal is recorded. --> Turning [3DNR] on after checking whole murky noises on the color bar. Be sure that whole noises are reduced in this status.

2-4-2. Troubleshooting flow chart

Procedure 1.

First, check the power supply voltage and the installation state of the 3DNR module.

Procedure 2.

Classify the defective symptoms into groups.

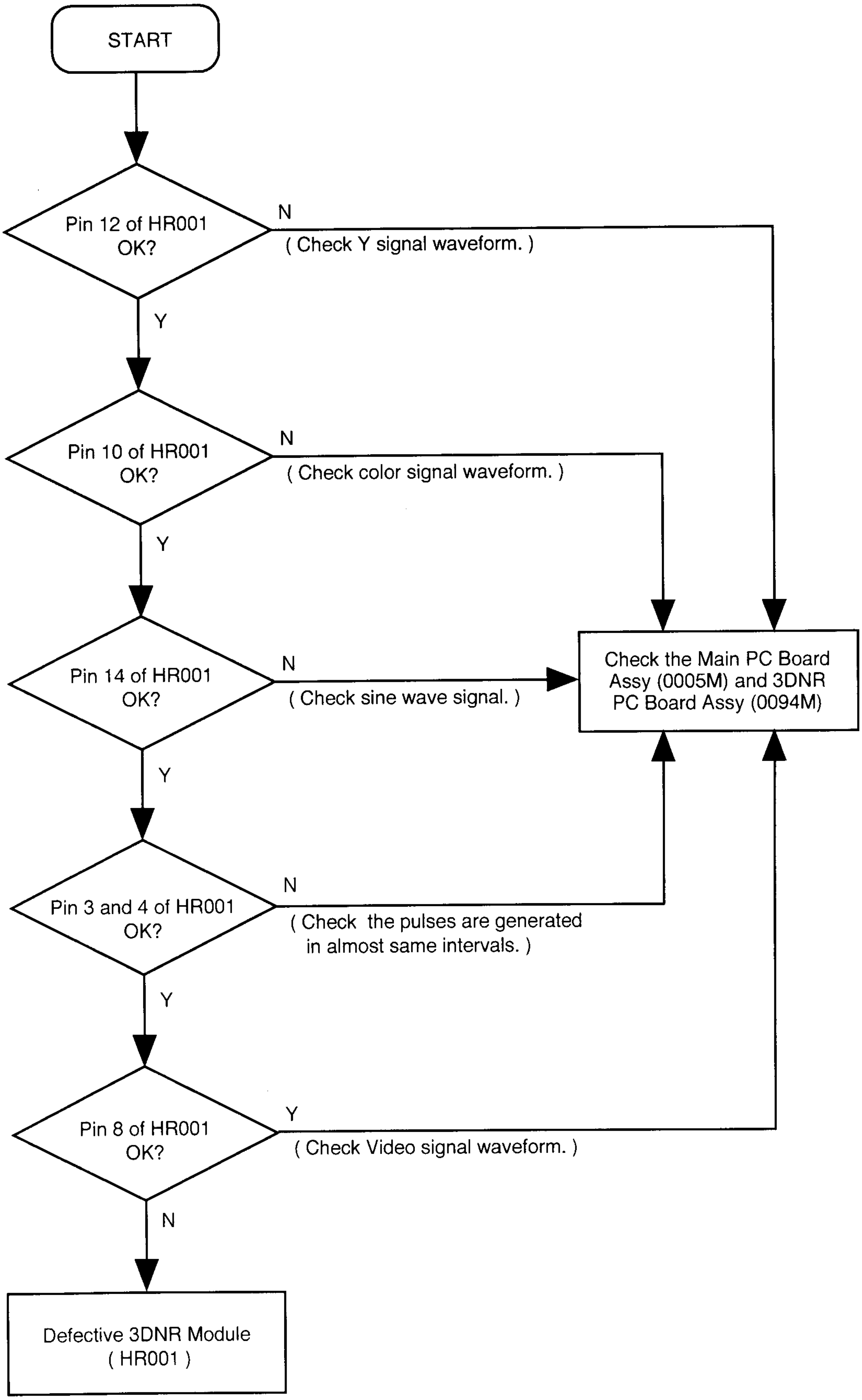
Check the screen on playback according to the operation check procedure 2-4-1.

Procedure 3.

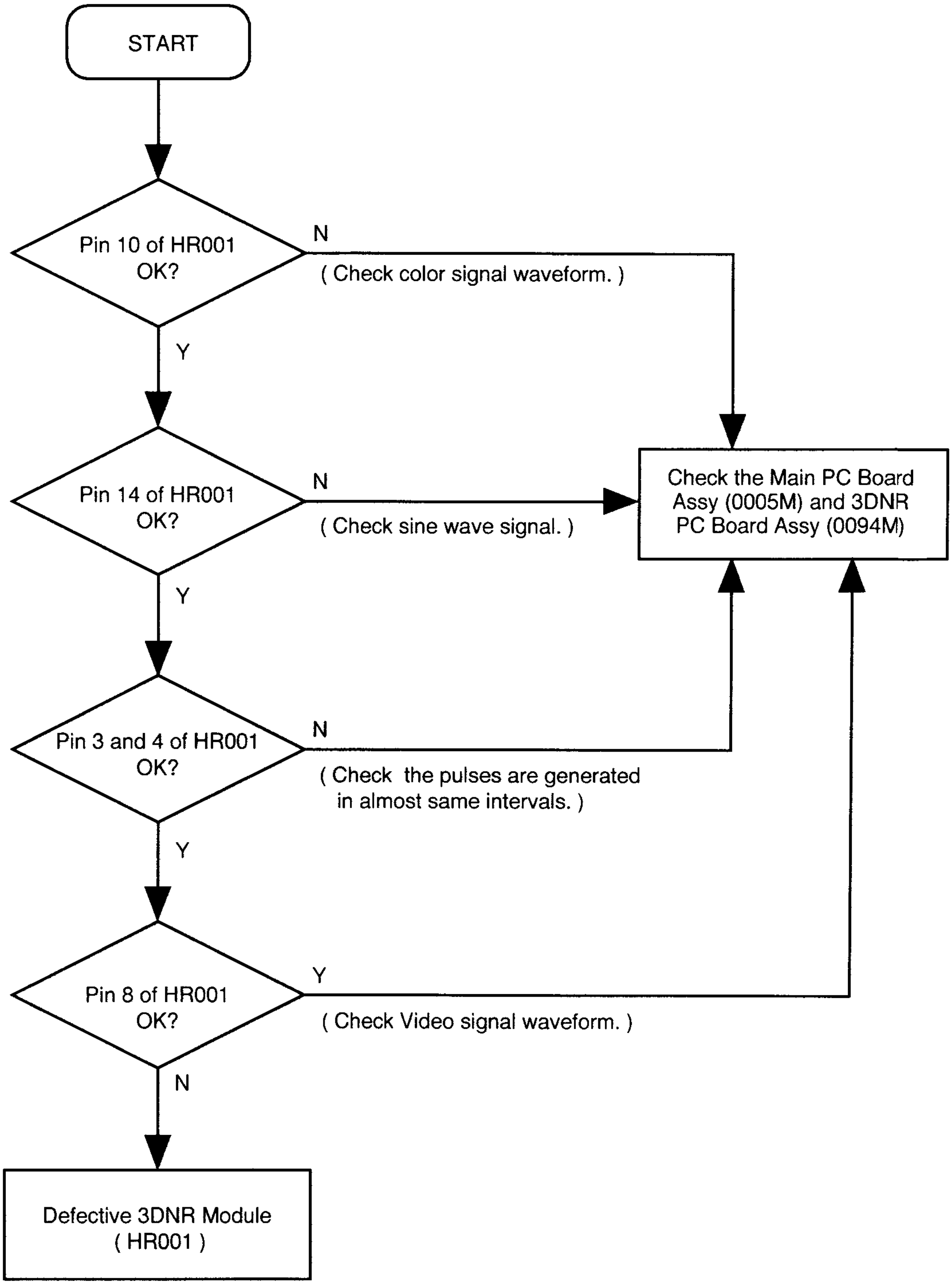
Check the defects according to the flow chart.

No.	Defective symptoms	Flow chart
(1)	No display appears when playing-back, or large turbulence and noises occur.	A
(2)	No color appears when playing-back, or color noises appear a lot.	B

A : No display appears when playing-back, or large turbulence and noises occur.


START
Pin 12 of HR001 OK?
N
(Check Y signal waveform.)
Y
Pin 10 of HR001 OK?
N
(Check color signal waveform.)
Y
Pin 14 of HR001 OK?
N
(Check sine wave signal.)
Check the Main PC Board Assy (0005M) and 3DNR PC Board Assy (0094M)
Y
Pin 3 and 4 of HR001 OK?
N
(Check the pulses are generated in almost same intervals.)
Y
Pin 8 of HR001 OK?
Y
(Check Video signal waveform.)
N
Defective 3DNR Module (HR001)

B : No color appears when playing-back, or color noises appear a lot.


START
Pin 10 of HR001 OK?
N
(Check color signal waveform.)
Y
Pin 14 of HR001 OK?
N
(Check sine wave signal.)
Check the Main PC Board Assy (0005M) and 3DNR PC Board Assy (0094M)
Y
Pin 3 and 4 of HR001 OK?
N
(Check the pulses are generated in almost same intervals.)
Y
Pin 8 of HR001 OK?
Y
(Check Video signal waveform.)
N
Defective 3DNR Module (HR001)

SECTION 3
SERVICING DIAGRAMS

1. INSPECTION PROCEDURES

Operation steps		Items to be confirmed	Inspection block	Page	
				Block Diagram	Circuit Diagram
1. Power SW ON	Timer setting Timer/counter, Memory Channel selection, AFC operation, EE pictuer & tone quality	Clock setting operation Mode display lamp TV receive condition Channel select operation, AFC operation level, EE pictuer and tone quality, Tone signal level	KDB Power Logic PIF Video (EE, Rec mode) Audio (EE, Rec mode)	3-15 3-13 3-19 3-14 3-26 3-29	3-40 3-33 3-46 3-36 3-52 3-58
2. Cassette-in and Cassette-out	Cassette-in Cassette loading Eject Cassette-out	F/L machanism operation Cassette loading operation Eject operation Indicator lamp Abnormal sound	Logic	3-19	3-46
3. Key entry operation Remote control	REC, PLAY Cue/Review Still, Frame feeding/slow FF/REW	VTR display, OSP Each mode operation (Tape draive operation) Abnormal sound	KDB Logic	3-15 3-19	3-40 3-46
4. Special Functions Counter Functions Tracking	Linear time counter, Index/skip search, Time search Digital auto tracking	Each mode operation Mode operation	Servo/Logic Servo/Logic	3-19 3-19	3-46 3-46
5. Playback Function Picture Sharpness Tone Quality Others	PLAY (Test tape : ST-C6/ST-C7) Cue/Review Still/Slow	Resolution, S/N, Hue, Saturation, Color unevenness, Color dropout, Sound distortion, Level variation, Picture noise, Jitter, Picture swing, Skew distortion, Flicker, Beat	Video PLAY system Audio PLAY system Servo system	3-26 3-29 3-19	3-52 3-58 3-46
6. REC/PLAY Function Picture Sharpness Tone Quality Others	REC/PLAY	Resolution, S/N, Hue, Saturation, Color unevenness, Color dropout, Sound distortion, Level variation, Picture noise, Jitter, Picture swing Skew distortion, Flicker, Beat	Video PLAY system Audio PLAY system Servo system	3-26 3-29 3-19	3-52 3-58 3-46

How to use the table

1. When inspecting a defective VTR, proceed according to the steps showin in the table.
2. Check the items to be confirmed for each operation step.
3. If a problem is found on the item, check waveforms (level) referring to the block diagram relating to the items.
4. Use PC board pattern diagram and schematic diagram to examine the circuit precisely.

2. REMOVAL OF THE CABINET

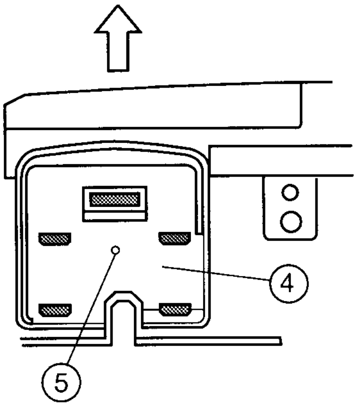
(1) Disconnect the plug from the inlet.

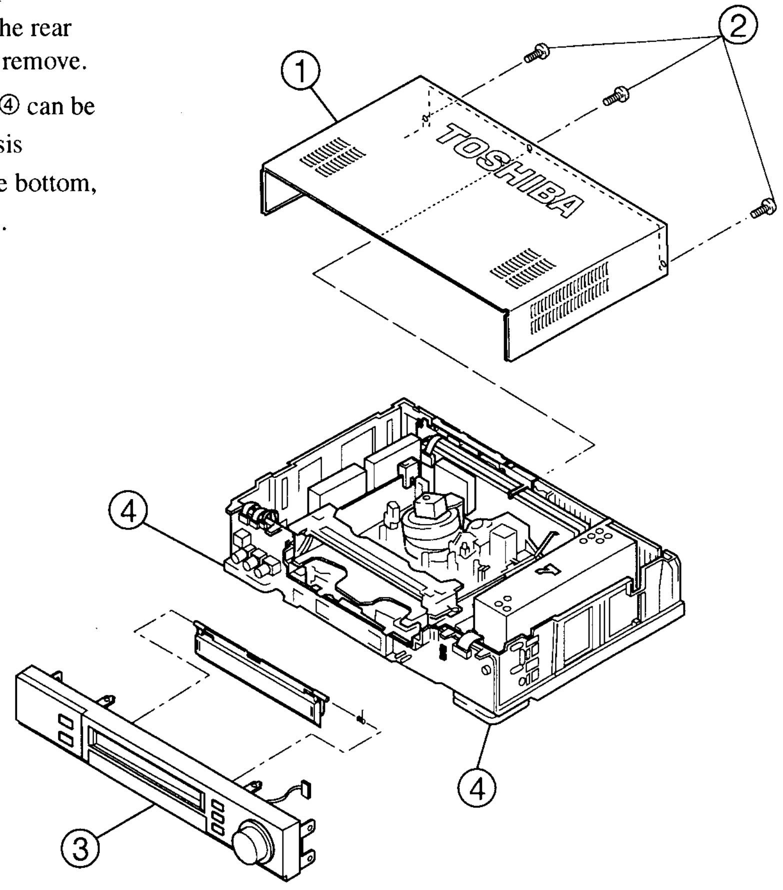
(2) Remove the three screws ② securing the top cover ①.

(3) Unlock two hooks at both left and right of the rear side,and slide the top cover ① backward to remove.

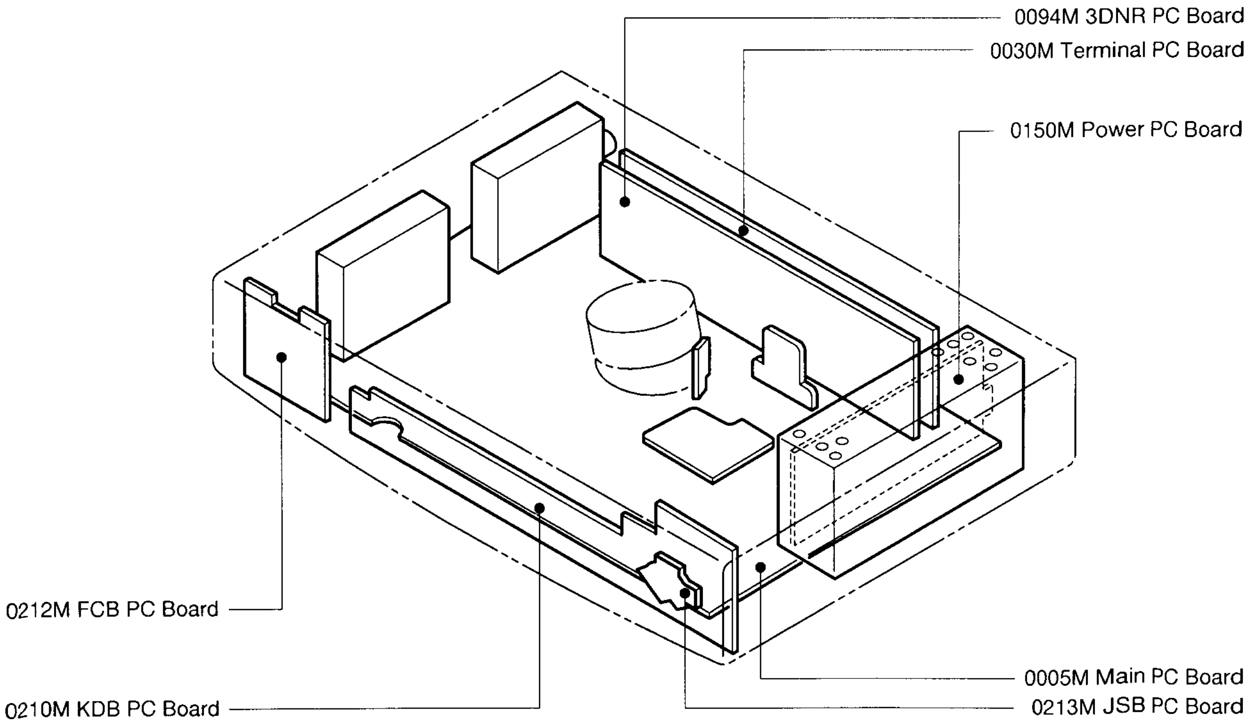
(4) Remove left and right insulators. Insulators ④ can be remove by unfastening the hook of the chassis inserting a bar into the hole ⑤ located on the bottom, and by sliding it to the arrow mark direction.

(5) Remove the connector (KDB unit side) of the Shuttle unit, and remove the front panel ③.




②
①
TOSHIBA
④
④
③

3. LOCATION OF ELECTRICAL UNITS

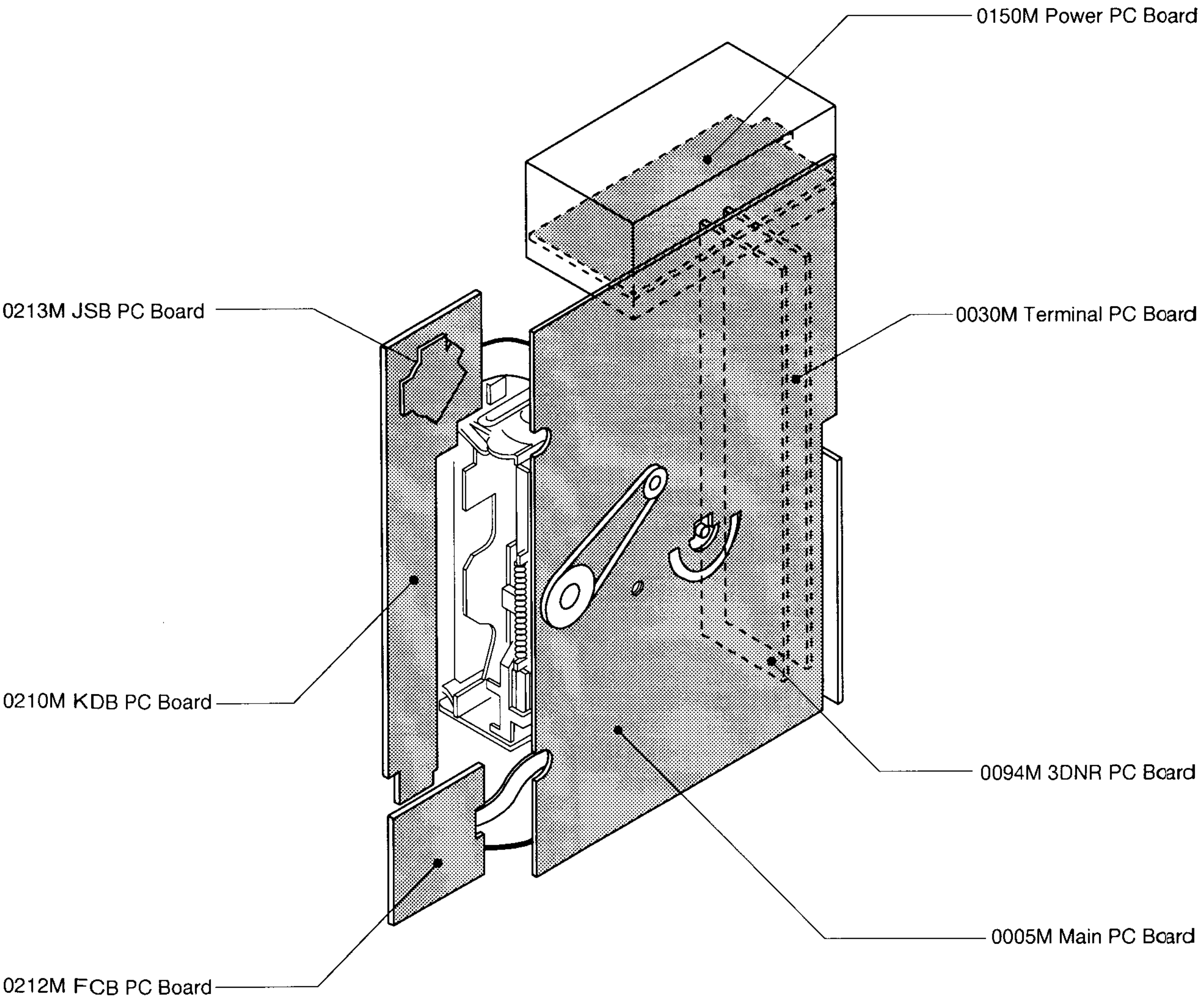

0094M 3DNR PC Board
0030M Terminal PC Board
0150M Power PC Board
0212M FCB PC Board
0210M KDB PC Board
0005M Main PC Board
0213M JSB PC Board

4. STANDING PC BOARDS FOR SERVICING

After removing the mechanical deck with the main PC board, place the machanical deck to upright. Then perform servicing in the condition that all the units are connected each other.

Note:

Applying an excessive force to the connector connecting KDB and FCB PC board will damage the connector. So, take much care when removing them.


0150M Power PC Board
0213M JSB PC Board
0030M Terminal PC Board
0210M KDB PC Board
0094M 3DNR PC Board
0005M Main PC Board
0212M FCB PC Board

5. PART CONFIGURATION AND THEIR SYMBOLS

1.ICs

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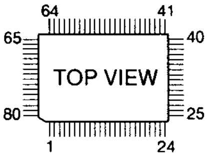
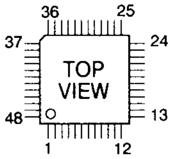
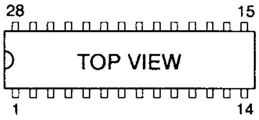
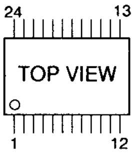
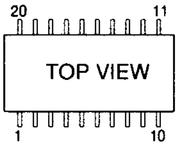
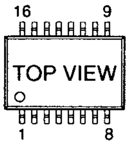
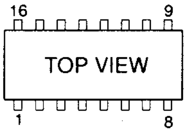
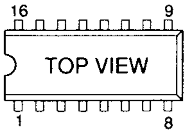
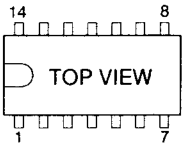
TA8863BF	 64 41 65 40 TOP VIEW 80 25 1 24
LA7447BM	 36 25 37 24 TOP VIEW 48 13 1 12
STV6400	 28 15 TOP VIEW 1 14
LC89970M	 24 13 TOP VIEW 1 12
SDA5649X	 20 11 TOP VIEW 1 10
MC14094BD	 16 9 TOP VIEW 1 8
74HC4053	 16 9 TOP VIEW 1 8
TB6515AP	 16 9 TOP VIEW 1 8
U4614B	 14 8 TOP VIEW 1 7

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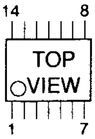
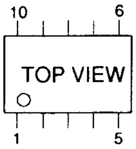
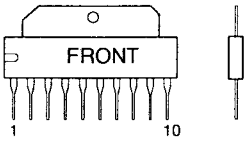
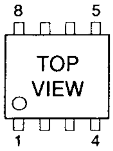
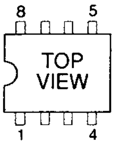
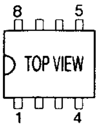
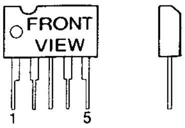
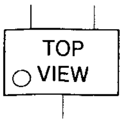
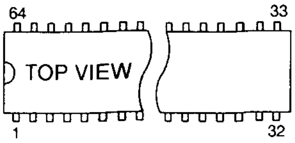
BA3129F	 14 8 TOP VIEW 1 7
LA7356M	 10 6 TOP VIEW 1 5
TA7291S	
LA6462M	 8 5 TOP VIEW 1 4
TA75557P	 8 5 TOP VIEW 1 4
ST24C08 LM393N BA7046	 8 5 TOP VIEW 1 4
BA7755	 FRONT VIEW 1 5
PST7032MT	
MSP3400C	 64 33 TOP VIEW 1 32

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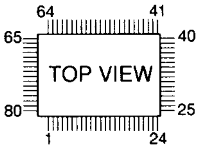
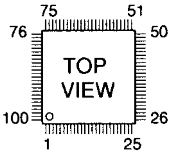
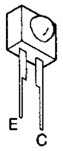
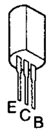
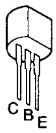
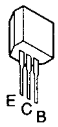
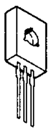
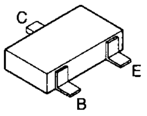
TMP87CM70AF-6472	 64 41 65 40 TOP VIEW 80 25 1 24
TMP90CS74DF-7882	 75 51 76 50 TOP VIEW 100 26 1 25
2.TRANSISTORs	
PT493F	
2SC2236-Y(C) 2SA1020-Y	
BC337	
2SA1048-Y	
BD435	
RN1401,DTC144E,BC847B 2SA1162-Y,2SA1162GR,BC848B RN2403,RN2402 RN1405,BC858 RN1404,BC858 RN1402,BC848	

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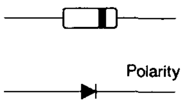
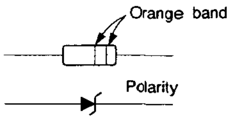
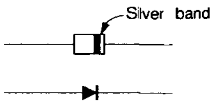
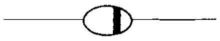
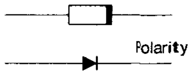
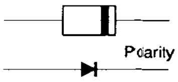
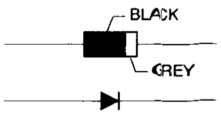
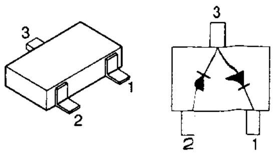
1N4007,MTZJ4.7C 1N4448 1N4148 BZX55B2V7 1N4148 ZPD10V	
ZPD5.6	 Orange band Polarity
MUR115 BA158	 Silver band
BYV28-150 MUR115	
ZP5.1 ZPD8.2 1N4001 BAV20	
FR104 BAV20	
IN5822 FR104	
1SS226	

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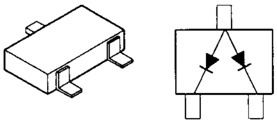
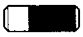
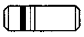
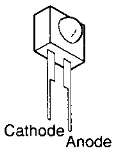
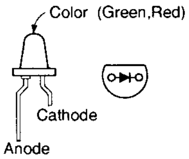
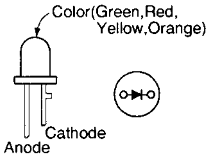
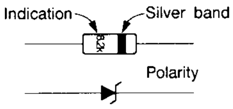
1SS181			
LL4448 LL4148			
ZMM5.6			
GL451V	 Cathode Anode		
TLUG163	 Color (Green,Red) Cathode Anode		
SE303AC	 Color(Green,Red, Yellow,Orange) Cathode Anode		
ZPD12 MTZJ33B	 Indication Silver band Polarity		

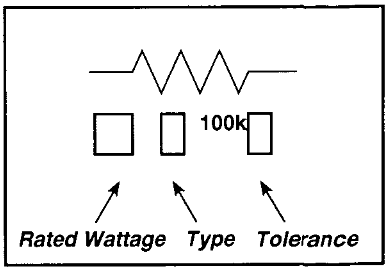
5-1. Precautions for Part Replacement

* In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.

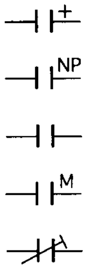
* Using the parts other then those specified shall violate the regulations, and may cause troubles such as operation failures, fire, etc.

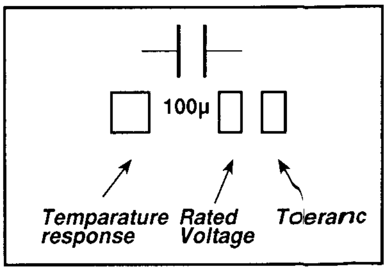
5-2. Solid Resistor Indication

Unit	None • • • Ω k • • • kΩ M • • • MΩ
Tolerance	None • • • ± 5 % B • • • ± 0.1 % C • • • ± 0.25 % D • • • ± 0.5 % F • • • ± 1 % G • • • ± 2 % K • • • ± 10 % M • • • ± 20 %
Rated Wattage	(1) Chip Parts None • • • 1/16 W (2) Other Parts None • • • 1/6 W Other then above, described in the Circuit Diagram
Type	None • • • Carbon film S • • • Solid R • • • Oxide metal film W • • • Metal film W • • • Cement RF • • • Fusible



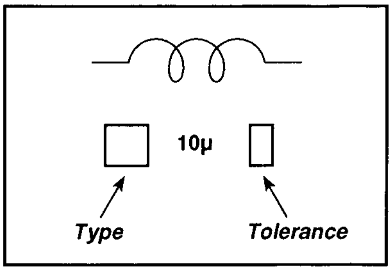
5-3. Capacitance Indication

Symbol	 • • • Electrolytic, Special electrolytic • • • Non polarity electrolytic • • • Ceramic, plastic • • • Film • • • Trimmer
Unit	None • • • F m • • • mF p • • • pF
Rated voltage	None • • • 50 V For other than 50 V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None • • • ± 5 % or more B • • • ± 0.1 % C • • • ± 0.25 % D • • • ± 0.5 % F • • • ± 1 % G • • • ± 2 % (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None • • • more than ± 5 pF B • • • ± 0.1 pF C • • • ± 0.25 pF (3) Electrolytic,Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None • • • SL For others, temperature characteristics are described. (For capacitors of 0.01 mF and no indications are described as F.)



5-4. Inductor Indication

Unit	None • • • H m • • • mH m • • • mH
Tolerance	None • • • ± 5 % B • • • ± 0.1 % C • • • ± 0.25 % D • • • ± 0.5 % F • • • ± 1 % G • • • ± 2 % K • • • ± 10 % M • • • ± 20 %
Type	PL • • • Peaking For others, model name is described.



5-5. Waveform and Voltage Measurement

* Measurement of waveform and voltage at each section in the color circuits was conducted with sufficient service color bar signal being received and reproduced in normal conditions.

* Waveforms and voltage values for the remaining circuit were measured with a broadcasting signal normally received, so they may vary slightly according to the programs being received. Use them as a measure for servicing.

* All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

5-6. Chip Part Replacement

(Use spare part with wire leads connected.)

1. Hold a Chip part to be removed with tweezers and apply heat to the solder at one end of the part with a soldering iron. (Fig. 1)
2. Apply heat to the solder at the other end of the part and remove it.
   The heating time should be as short as possible so the excessive heat is the applied to foil patterns and the P C Board.
3. If it is difficult to remove the part, temporarily stop the desoldering job and wait until temperature of the part lowers. Then, repeat steps 1 and 2.
4. Form leads of the replacement part (general part equivalent to the chip part) as shown in the figures and solder place. (Fig. 2)
5. Mount the replacement part so that it does not touch any other parts. (Fig. 3)

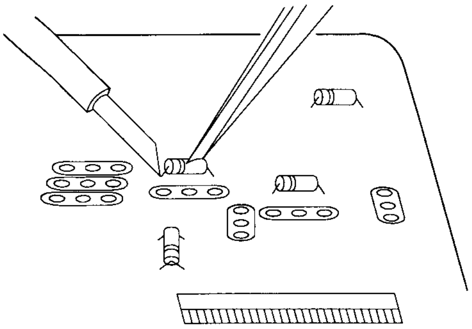


Fig. 1

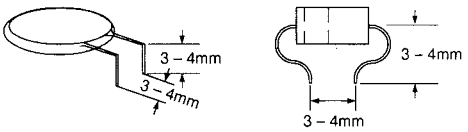


Fig. 2

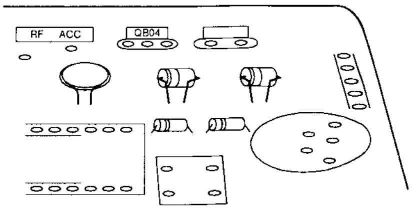


Fig. 3

5-7. Replacing Subminiature "CHIP" Parts

5-7-1. Required tools:

1. Fine tipped, well insulated soldering "pencil", about 30 Watts.
2. Tweezers
3. Blower type hair dryer.

5-7-2. Soldering cautions:

1. Do not apply heat for more than 3 seconds.
2. Avoid using a rubbing stroke when soldering.
3. Discard removed chips; do no reuse them.
4. Supplementary cementing is not required.
5. Use care not to scratch or otherwise damage the chips.

5-7-3. Removal (resistors, capacitors, etc.):

1. Melt the solder at one side.

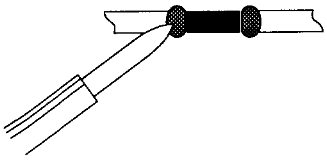


Fig. 1

2. Grasp the part with tweezers and melt the solder at the other side.

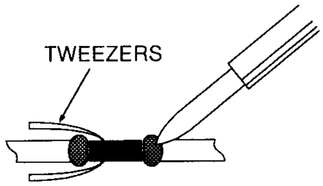


Fig. 2

3. Remove the part with a twisting motion.

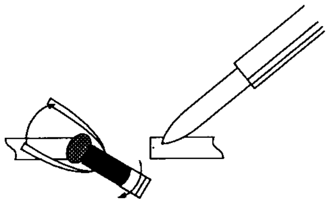


Fig. 3

5-7-4. Removal (transistor, diodes, etc.):

1. Melt the solder of one lead.

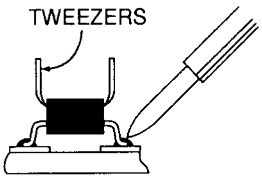


Fig. 4

2. Lift the side of that lead upward.

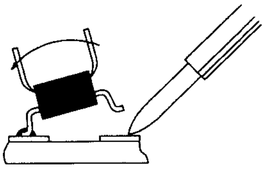


Fig. 5

3. Simultaneously heat solder the two remaining leads and lift part to remove.

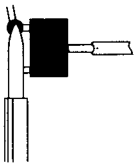


Fig. 6

5-7-5. Preheating (except for semiconductors):

Immediately before installing new resistors or capacitors, use a blower type hair dryer and preheat the part for about two minutes at approximately 150°C.

5-7-6. Replacement:

1. Presolder the contact points of the circuit pattern.

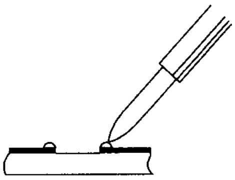


Fig. 7

2. Press the part downward with tweezers and apply the soldering pencil as indicated in the figure.

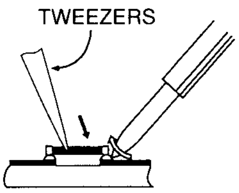
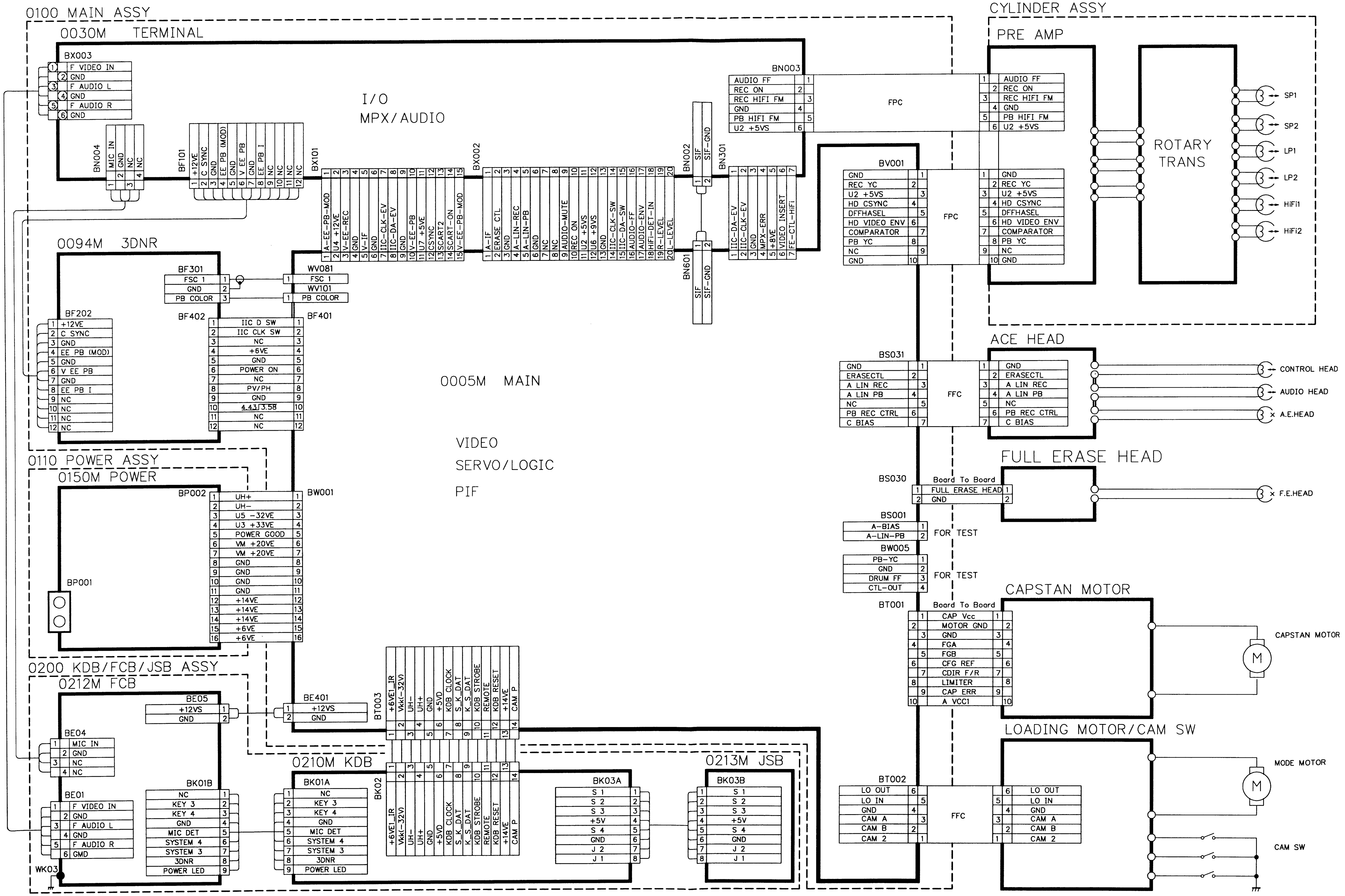
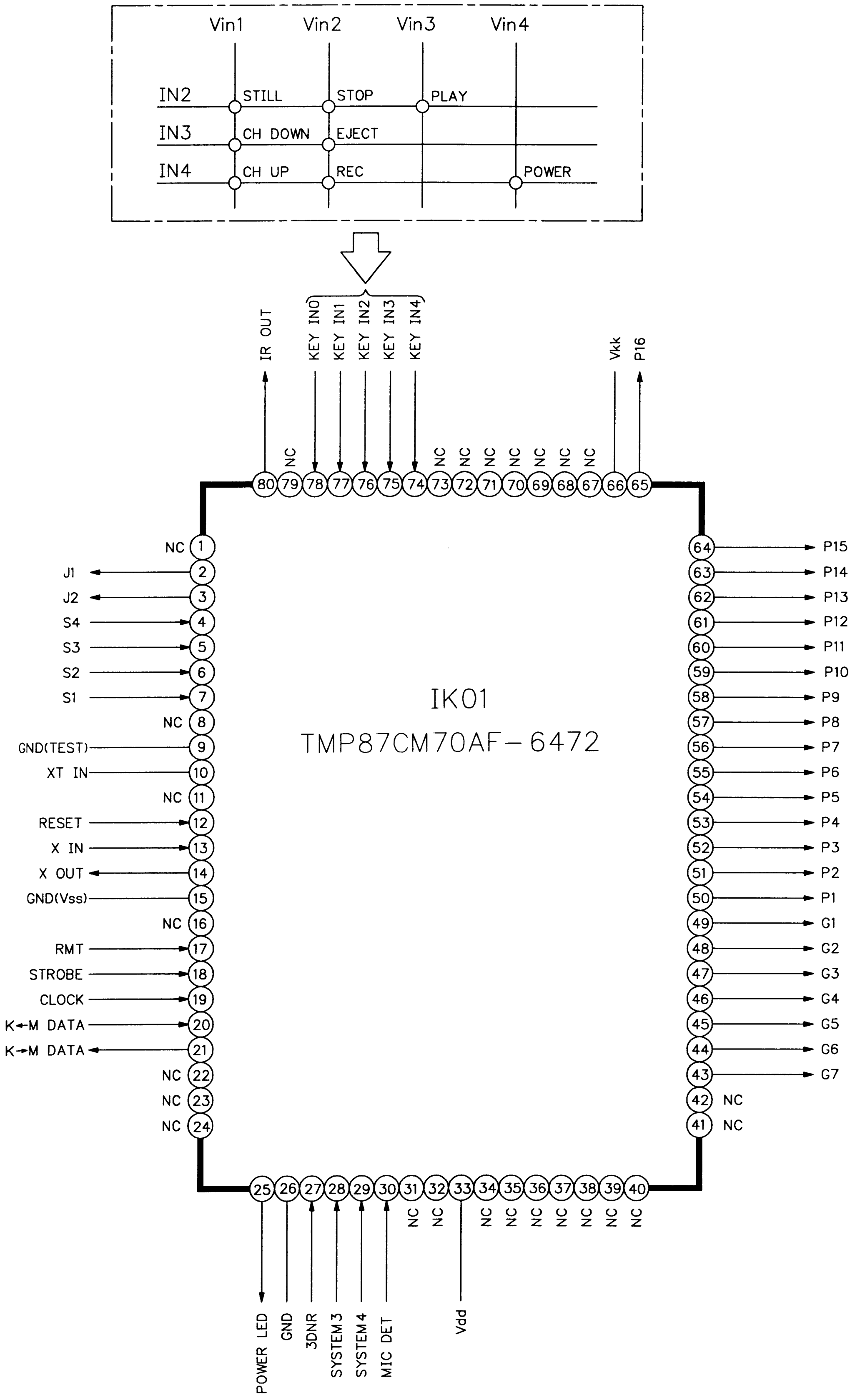


Fig. 8

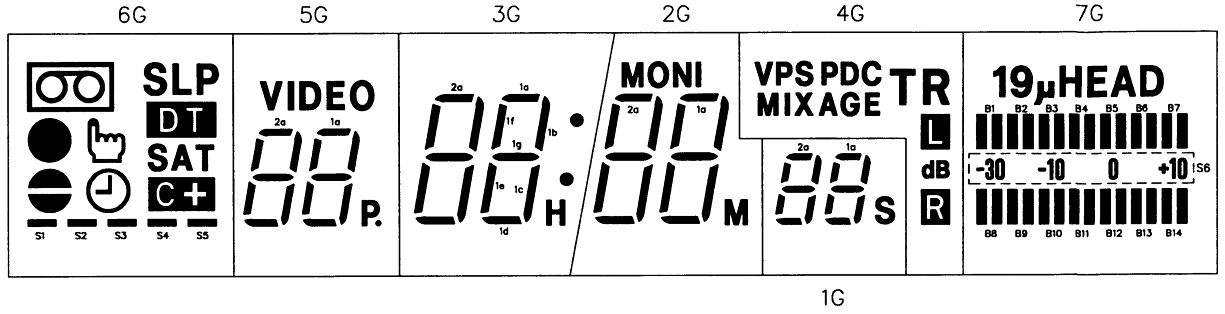
6. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM


0100 MAIN ASSY
0030M TERMINAL
BX003
F VIDEO IN
GND
F AUDIO L
GND
F AUDIO R
GND
I/O
MPX/AUDIO
BN004
MIC IN
GND
NC
NC
BF101
+12VE
C SYNC
GND
EE PB (MOD)
GND
V EE PB
GND
EE PB I
NC
NC
NC
NC
BX101
A-EE-PB-MOD
U4 +12VE
V-EE-REC
GND
V-IF
GND
IIC-CLK-EV
IIC-DA-EV
GND
V-EE-PB
U7 +5VE
CSYNC
SCART2
SCART-ON
V-EE-PB-MOD
BX002
A-IF
ERASE CTL
GND
A-LIN-REC
A-LIN-PB
GND
NC
AUDIO-MUTE
REC ON
U2 +5VS
U6 +9VS
GND
IIC-CLK-SW
IIC-DA-SW
AUDIO-FF
AUDIO-ENV
HiFi-DET-IN
R-LEVEL
L-LEVEL
BN002
SIF
SIF-GND
BN601
BN301
IIC-DA-EV
IIC-CLK-EV
GND
MPX-ERR
+8VE
VIDEO INSERT
FE-CTL-HiFi
BN003
AUDIO FF
REC ON
REC HIFI FM
GND
PB HIFI FM
U2 +5VS
FPC
CYLINDER ASSY
PRE AMP
ROTARY TRANS
SP1
SP2
LP1
LP2
HiFi1
HiFi2
BV001
GND
REC YC
U2 +5VS
HD CSYNC
DFFHASEL
HD VIDEO ENV
COMPARATOR
PB YC
NC
GND
0094M 3DNR
BF301
FSC 1
GND
PB COLOR
WV081
WV101
BF202
+12VE
C SYNC
GND
EE PB (MOD)
GND
V EE PB
GND
EE PB I
NC
NC
NC
NC
BF402
BF401
IIC D SW
IIC CLK SW
NC
+6VE
GND
POWER ON
NC
PV/PH
GND
4.43/3.58
NC
NC
0005M MAIN
VIDEO
SERVO/LOGIC
PIF
ACE HEAD
BS031
GND
ERASECTL
A LIN REC
A LIN PB
NC
PB REC CTRL
C BIAS
FFC
CONTROL HEAD
AUDIO HEAD
A.E.HEAD
FULL ERASE HEAD
BS030
Board To Board
FULL ERASE HEAD
GND
F.E.HEAD
BS001
A-BIAS
A-LIN-PB
FOR TEST
BW005
PB-YC
GND
DRUM FF
CTL-OUT
FOR TEST
0110 POWER ASSY
0150M POWER
BP002
BW001
UH+
UH-
U5 -32VE
U3 +33VE
POWER GOOD
VM +20VE
VM +20VE
GND
GND
GND
GND
+14VE
+14VE
+14VE
+6VE
+6VE
BP001
CAPSTAN MOTOR
BT001
Board To Board
CAP Vcc
MOTOR GND
GND
FGA
FGB
CFG REF
CDIR F/R
LIMITER
CAP ERR
A VCC1
CAPSTAN MOTOR
M
0200 KDB/FCB/JSB ASSY
0212M FCB
BE05
+12VS
GND
BE401
+12VS
GND
BT003
+6VE1_IR
Vkk(-32V)
UH-
UH+
GND
+5VD
KDB CLOCK
K_S_DAT
K_S_DAT
KDB STROBE
REMOTE
KDB RESET
+14VE
CAM P
BE04
MIC IN
GND
NC
NC
BE01
F VIDEO IN
GND
F AUDIO L
GND
F AUDIO R
GMD
WK03
BK01B
NC
KEY 3
KEY 4
GND
MIC DET
SYSTEM 4
SYSTEM 3
3DNR
POWER LED
0210M KDB
BK01A
NC
KEY 3
KEY 4
GND
MIC DET
SYSTEM 4
SYSTEM 3
3DNR
POWER LED
BK02
+6VE1_IR
Vkk(-32V)
UH-
UH+
GND
+5VD
KDB CLOCK
K_S_DAT
K_S_DAT
KDB STROBE
REMOTE
KDB RESET
+14VE
CAM P
BK03A
S 1
S 2
S 3
+5V
S 4
GND
J 2
J 1
0213M JSB
BK03B
S 1
S 2
S 3
+5V
S 4
GND
J 2
J 1
LOADING MOTOR/CAM SW
BT002
LO OUT
LO IN
GND
CAM A
CAM B
CAM 2
FFC
MODE MOTOR
M
CAM SW

DISPLAY MICROCOMPUTER TERMINAL FUNCTION


Vin1
Vin2
Vin3
Vin4
IN2
STILL
STOP
PLAY
IN3
CH DOWN
EJECT
IN4
CH UP
REC
POWER
IR OUT
KEY IN0
KEY IN1
KEY IN2
KEY IN3
KEY IN4
Vkk
P16
NC
IK01
TMP87CM70AF-6472
NC 1
J1 2
J2 3
S4 4
S3 5
S2 6
S1 7
NC 8
GND(TEST) 9
XT IN 10
NC 11
RESET 12
X IN 13
X OUT 14
GND(Vss) 15
NC 16
RMT 17
STROBE 18
CLOCK 19
K←M DATA 20
K→M DATA 21
NC 22
NC 23
NC 24
64 P15
63 P14
62 P13
61 P12
60 P11
59 P10
58 P9
57 P8
56 P7
55 P6
54 P5
53 P4
52 P3
51 P2
50 P1
49 G1
48 G2
47 G3
46 G4
45 G5
44 G6
43 G7
42 NC
41 NC
POWER LED
GND
3DNR
SYSTEM3
SYSTEM4
MIC DET
Vdd

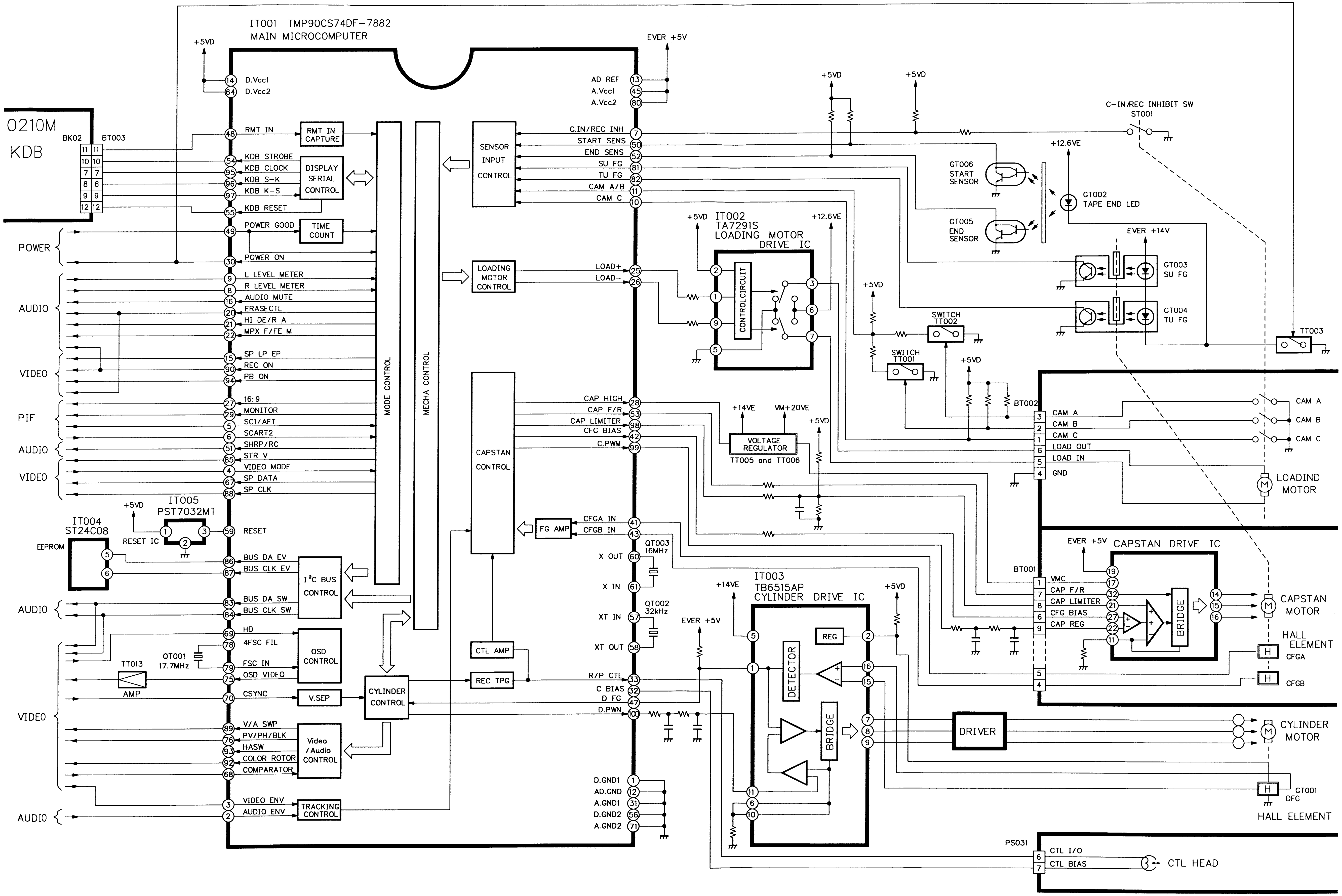
Key Dislpay GX01 7-MT-171GNK


6G
5G
3G
2G
4G
7G
1G
SLP
DT
SAT
C+
VIDEO
P.
H
MONI
M
VPS PDC
MIXAGE
TR
L
dB
R
S
19µHEAD
-30
-10
0
+10
S1
S2
S3
S4
S5
S6
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
1a
1b
1c
1d
1e
1f
1g
2a

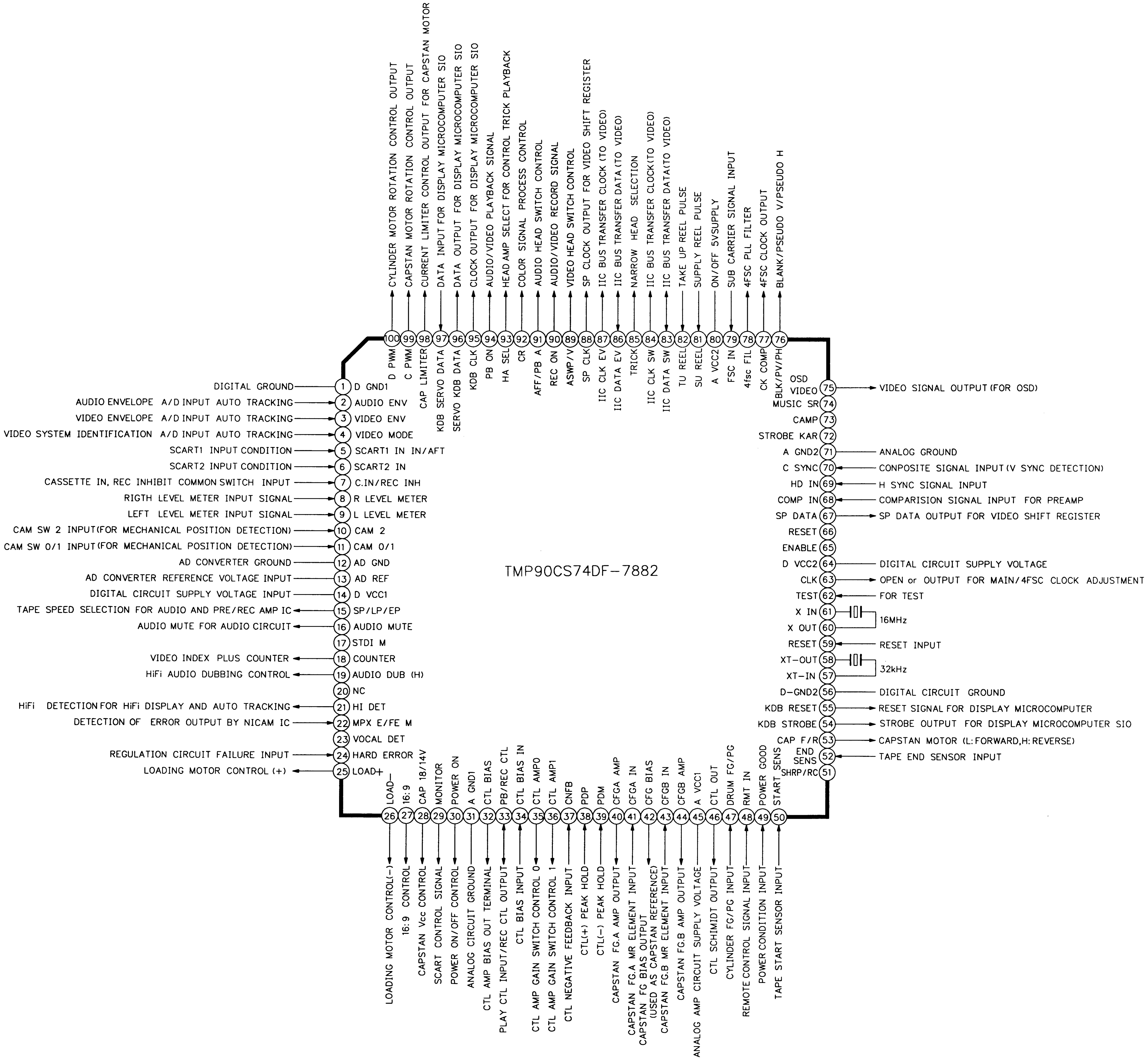
Display Pattern

	7G	6G	5G	4G	3G	2G	1G
P1	B1	◷	1d	**VPS**	1d	1d	1d
P2	B2	⊖	1e	**MIX**	1e	1e	1e
P3	B3	☞	1c	**AGE**	1c	1c	1c
P4	B4	●	1g	**PDC**	1g	1g	1g
P5	B5	**P**	1f	**L**	1f	1f	1f
P6	B6	**L**	1b	**dB**	1b	1b	1b
P7	B7	**S**	1a	**R**	1a	1a	1a
P8	**19µHEAD**	OO	**VIDEO**	**TR**	**H**	**M**	**S**
P9	B8	S5	2d		2d	2d	2d
P10	B9	S4	2e		2e	2e	2e
P11	B10	S3	2c		2c	2c	2c
P12	B11	S2	2g		2g	2g	2g
P13	B12	S1	2f		2f	2f	2f
P14	B13	**C+**	2b		2b	2b	2b
P15	B14	**SAT**	2a		2a	2a	2a
P16	S6	**DT**	**P.**		col :	**MONI**	

7-4. SERVO / LOGIC BLOCK DIAGRAM


IT001 TMP90CS74DF-7882
MAIN MICROCOMPUTER
+5VD
EVER +5V
D.Vcc1
D.Vcc2
AD REF
A.Vcc1
A.Vcc2
0210M
KDB
BK02
BT003
RMT IN
RMT IN CAPTURE
KDB STROBE
KDB CLOCK
KDB S-K
KDB K-S
KDB RESET
DISPLAY SERIAL CONTROL
POWER GOOD
TIME COUNT
POWER ON
POWER
L LEVEL METER
R LEVEL METER
AUDIO MUTE
ERASECTL
HI DE/R A
MPX F/FE M
AUDIO
SP LP EP
REC ON
PB ON
VIDEO
16:9
MONITOR
SC1/AFT
SCART2
PIF
SHRP/RC
AUDIO
STR V
VIDEO MODE
SP DATA
SP CLK
VIDEO
MODE CONTROL
MECHA CONTROL
SENSOR INPUT CONTROL
C.IN/REC INH
START SENS
END SENS
SU FG
TU FG
CAM A/B
CAM C
LOADING MOTOR CONTROL
LOAD+
LOAD−
CAPSTAN CONTROL
CAP HIGH
CAP F/R
CAP LIMITER
CFG BIAS
C.PWM
FG AMP
CFGA IN
CFGB IN
IT005
PST7032MT
RESET IC
IT004
ST24C08
EEPROM
RESET
BUS DA EV
BUS CLK EV
I²C BUS CONTROL
BUS DA SW
BUS CLK SW
X OUT
X IN
QT003 16MHz
XT IN
XT OUT
QT002 32kHz
HD
4FSC FIL
FSC IN
OSD VIDEO
OSD CONTROL
QT001 17.7MHz
TT013
AMP
CSYNC
V.SEP
CYLINDER CONTROL
CTL AMP
REC TPG
R/P CTL
C BIAS
D FG
D.PWM
V/A SWP
PV/PH/BLK
HASW
COLOR ROTOR
COMPARATOR
Video /Audio CONTROL
VIDEO ENV
AUDIO ENV
TRACKING CONTROL
D.GND1
AD.GND
A.GND1
D.GND2
A.GND2
C-IN/REC INHIBIT SW
ST001
+12.6VE
GT006 START SENSOR
GT005 END SENSOR
GT002 TAPE END LED
EVER +14V
GT003 SU FG
GT004 TU FG
IT002 TA7291S
LOADING MOTOR DRIVE IC
CONTROLCIRCUIT
SWITCH TT002
SWITCH TT001
TT003
+14VE
VM+20VE
VOLTAGE REGULATOR
TT005 and TT006
BT002
CAM A
CAM B
CAM C
LOAD OUT
LOAD IN
GND
LOADIND MOTOR
BT001
EVER +5V
CAPSTAN DRIVE IC
VMC
CAP F/R
CAP LIMITER
CFG BIAS
CAP REG
BRIDGE
CAPSTAN MOTOR
HALL ELEMENT
CFGA
CFGB
IT003 TB6515AP
CYLINDER DRIVE IC
REG
DETECTOR
BRIDGE
DRIVER
CYLINDER MOTOR
GT001 DFG
HALL ELEMENT
PS031
CTL I/O
CTL BIAS
CTL HEAD

7-4-1. IT001 Main Microcomputer Terminal Function


TMP90CS74DF-7882
CYLINDER MOTOR ROTATION CONTROL OUTPUT
CAPSTAN MOTOR ROTATION CONTROL OUTPUT
CURRENT LIMITER CONTROL OUTPUT FOR CAPSTAN MOTOR
DATA INPUT FOR DISPLAY MICROCOMPUTER SIO
DATA OUTPUT FOR DISPLAY MICROCOMPUTER SIO
CLOCK OUTPUT FOR DISPLAY MICROCOMPUTER SIO
AUDIO/VIDEO PLAYBACK SIGNAL
HEAD AMP SELECT FOR CONTROL TRICK PLAYBACK
COLOR SIGNAL PROCESS CONTROL
AUDIO HEAD SWITCH CONTROL
AUDIO/VIDEO RECORD SIGNAL
VIDEO HEAD SWITCH CONTROL
SP CLOCK OUTPUT FOR VIDEO SHIFT REGISTER
IIC BUS TRANSFER CLOCK (TO VIDEO)
IIC BUS TRANSFER DATA (TO VIDEO)
NARROW HEAD SELECTION
IIC BUS TRANSFER CLOCK(TO VIDEO)
IIC BUS TRANSFER DATA(TO VIDEO)
TAKE UP REEL PULSE
SUPPLY REEL PULSE
ON/OFF 5VSUPPLY
SUB CARRIER SIGNAL INPUT
4FSC PLL FILTER
4FSC CLOCK OUTPUT
BLANK/PSEUDO V/PSEUDO H
(100) D PWM
(99) C PWM
(98) CAP LIMITER
(97) KDB SERVO DATA
(96) SERVO KDB DATA
(95) KDB CLK
(94) PB ON
(93) HA SEL
(92) CR
(91) AFF/PB A
(90) REC ON
(89) ASWP/V
(88) SP CLK
(87) IIC CLK EV
(86) IIC DATA EV
(85) TRICK
(84) IIC CLK SW
(83) IIC DATA SW
(82) TU REEL
(81) SU REEL
(80) A VCC2
(79) FSC IN
(78) 4fsc FIL
(77) CK COMP
(76) BLK/PV/PH
DIGITAL GROUND ① D GND1
AUDIO ENVELOPE A/D INPUT AUTO TRACKING ② AUDIO ENV
VIDEO ENVELOPE A/D INPUT AUTO TRACKING ③ VIDEO ENV
VIDEO SYSTEM IDENTIFICATION A/D INPUT AUTO TRACKING ④ VIDEO MODE
SCART1 INPUT CONDITION ⑤ SCART1 IN IN/AFT
SCART2 INPUT CONDITION ⑥ SCART2 IN
CASSETTE IN, REC INHIBIT COMMON SWITCH INPUT ⑦ C.IN/REC INH
RIGTH LEVEL METER INPUT SIGNAL ⑧ R LEVEL METER
LEFT LEVEL METER INPUT SIGNAL ⑨ L LEVEL METER
CAM SW 2 INPUT(FOR MECHANICAL POSITION DETECTION) ⑩ CAM 2
CAM SW 0/1 INPUT(FOR MECHANICAL POSITION DETECTION) ⑪ CAM 0/1
AD CONVERTER GROUND ⑫ AD GND
AD CONVERTER REFERENCE VOLTAGE INPUT ⑬ AD REF
DIGITAL CIRCUIT SUPPLY VOLTAGE INPUT ⑭ D VCC1
TAPE SPEED SELECTION FOR AUDIO AND PRE/REC AMP IC ⑮ SP/LP/EP
AUDIO MUTE FOR AUDIO CIRCUIT ⑯ AUDIO MUTE
⑰ STDI M
VIDEO INDEX PLUS COUNTER ⑱ COUNTER
HiFi AUDIO DUBBING CONTROL ⑲ AUDIO DUB (H)
⑳ NC
HiFi DETECTION FOR HiFi DISPLAY AND AUTO TRACKING ㉑ HI DET
DETECTION OF ERROR OUTPUT BY NICAM IC ㉒ MPX E/FE M
㉓ VOCAL DET
REGULATION CIRCUIT FAILURE INPUT ㉔ HARD ERROR
LOADING MOTOR CONTROL (+) ㉕ LOAD+
OSD VIDEO ㉟ VIDEO SIGNAL OUTPUT (FOR OSD)
MUSIC SR (74)
CAMP (73)
STROBE KAR (72)
A GND2 (71) ANALOG GROUND
C SYNC (70) CONPOSITE SIGNAL INPUT (V SYNC DETECTION)
HD IN (69) H SYNC SIGNAL INPUT
COMP IN (68) COMPARISION SIGNAL INPUT FOR PREAMP
SP DATA (67) SP DATA OUTPUT FOR VIDEO SHIFT REGISTER
RESET (66)
ENABLE (65)
D VCC2 (64) DIGITAL CIRCUIT SUPPLY VOLTAGE
CLK (63) OPEN or OUTPUT FOR MAIN/4FSC CLOCK ADJUSTMENT
TEST (62) FOR TEST
X IN (61)
X OUT (60)
16MHz
RESET (59) RESET INPUT
XT-OUT (58)
XT-IN (57)
32kHz
D-GND2 (56) DIGITAL CIRCUIT GROUND
KDB RESET (55) RESET SIGNAL FOR DISPLAY MICROCOMPUTER
KDB STROBE (54) STROBE OUTPUT FOR DISPLAY MICROCOMPUTER SIO
CAP F/R (53) CAPSTAN MOTOR (L:FORWARD,H:REVERSE)
END SENS (52) TAPE END SENSOR INPUT
SHRP/RC (51)
㉖ LOAD- LOADING MOTOR CONTROL(-)
㉗ 16:9 16:9 CONTROL
㉘ CAP 18/14V CAPSTAN Vcc CONTROL
㉙ MONITOR SCART CONTROL SIGNAL
㉚ POWER ON POWER ON/OFF CONTROL
㉛ A GND1 ANALOG CIRCUIT GROUND
㉜ CTL BIAS CTL AMP BIAS OUT TERMINAL
㉝ PB/REC CTL PLAY CTL INPUT/REC CTL OUTPUT
㉞ CTL BIAS IN CTL BIAS INPUT
㉟ CTL AMP0 CTL AMP GAIN SWITCH CONTROL 0
(36) CTL AMP1 CTL AMP GAIN SWITCH CONTROL 1
(37) CNFB CTL NEGATIVE FEEDBACK INPUT
(38) PDP CTL(+) PEAK HOLD
(39) PDM CTL(-) PEAK HOLD
(40) CFGA AMP CAPSTAN FG.A AMP OUTPUT
(41) CFGA IN CAPSTAN FG.A MR ELEMENT INPUT
(42) CFG BIAS CAPSTAN FG BIAS OUTPUT (USED AS CAPSTAN REFERENCE)
(43) CFGB IN CAPSTAN FG.B MR ELEMENT INPUT
(44) CFGB AMP CAPSTAN FG.B AMP OUTPUT
(45) A VCC1 ANALOG AMP CIRCUIT SUPPLY VOLTAGE
(46) CTL OUT CTL SCHIMIDT OUTPUT
(47) DRUM FG/PG CYLINDER FG/PG INPUT
(48) RMT IN REMOTE CONTROL SIGNAL INPUT
(49) POWER GOOD POWER CONDITION INPUT
(50) START SENS TAPE START SENSOR INPUT

7-4-2. IT001 Main Microcomputer Output Polarity

PIN NO.	MODE / PORT NAME	ACT.	SLOT IN	SLOT OUT	Loading	Unloading	STOP	Standby	FF	REW	PLAY	Frame	CUE	REV	STILL	SLOW	REC	REC PAUSE	SHUTTLE MODE							Power off	Initial	Audio dubbing	Audio dubbing Pause
											SP LP	SP LP	SP LP	SP LP	SP LP	SP LP	SP LP	SP LP	STILL SP LP	x2 SP LP	PLAY SP LP	SLOW SP LP	R. Play SP LP	R. Slow SP LP	R. Still SP LP			SP LP	
16	A. MUTE1	H	L	L	L	L	L	L	L	L	L	H	H	H	H	H	L	L	H	H	L	H	H	H	H	H	H	L	L
18	MONITOR ON	H	H: When TV/VTR is VTR mode																										
19	16: 9	H	L: When SET UP is OFF and TV/VTR is VTR mode, H: When SET UP is ON and TV/VTR is VTR mode																										
20	A. MUTE2	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H
21	SEC/MES EE/REC L	L	L: When video system is SECAM or MESECAM and OSD picture does not appear in EE or REC mode																										
22	REC (H)	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L
24	A. DUB	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H
25	LOAD +	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
26	LOAD -	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
27	CAP MID	H	H	H	H	H	H	H	L	L	L	H	H (1)	H (1)	H	H	L	H	H	H L	L	H	L	H	H	H	H	L	H
28	CAP HIGH	H	L	L	L	L	L	L	H	H	L	L	L (2)	L (2)	L	L	L	L	L	L L	L	L	L	L	L	L	L	L	L
30	POWER ON	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	L	L
33	R/P CTL	⊓⊓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	⊓⊓	-	-	-	-	-	-	-	-	-	OPEN	-	-
46	CTL OUT	⊓⊓	H/L	H/L	H/L	H/L	H/L	H/L	⊓⊓	←	←	⊓	⊓⊓	←	L	⊓	⊓⊓	L	L	⊓⊓	←	⊓	⊓⊓	⊓	L	L	L	⊓⊓	H/L
53	CAP F/R	-	L	H	L	H	H	H	L	H	L	⊓	L	H	L	⊓	L	L	L	L	L	⊓	H	⊔	H	H	L	L	L
54	S. STB	⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	L	←	←
67	MESECAM	L	L: When the system SW is SECAM position or video system is SECAM or MESECAM mode																										
72	NORM	H	H: When channel frequency table is "1-" or "2-"																										
74	STANDARD 1	L	L: When channel frequency table is 501-509 or 521-569																										
76	PV/PH/BLNK	4ST	2ST	←	←	←	←	←	←	←	4ST	←	←	←	←	←	←	←	←	←	←	←	←	←	←	L	L	L	L
83	12C DATA1	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	H	←	←
84	12C CLOCK1	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	H	←	←
85	TRICK	H	L	L	L	L	L	L	L	L	L	H	H	H	H	H	L	L	H	H	H	H	H	H	H	L	L	L	H
86	12C DATA2	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	H	←	←
87	12C CLOCK2	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	H	←	←
88	TRAP 31.9MHz	L	L: When channel frequency table is 302-320 or 371-380 or 401-420																										
89	V/A SWP	⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	OPEN	OPEN	⊓	←
92	CR	⊓⊓	←	←	←	←	←	←	←	←	←	⊓⊔	⊓⊓	←	L H	⊓⊔	⊓⊓	←	L H	⊓⊓ H	⊓⊓	⊓⊔	←	⊓⊔	L H	L	L	⊓⊓	⊓⊓
93	HASW	⊓⊓	H	H	L	L	L	H	-	-	L H	⊓⊓	⊓⊓ (3)	← (3)	←	←	L H	L H	⊓⊓	←	L H	⊓⊓	← (4)	←	←	L	L	L H	⊓⊓
95	S. CLK	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	L	←	←
96	S. DATA OUT	⊓⊓⊓⊓	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	L	←	←
98	CAP LIMITER	PWM	L	L	PWM	←	L	PWM	←	←	←	PWM	←	←	L	PWM	←	←	L	PWM	←	←	←	←	L	L	500mA	PWM	PWM
99	C-PWM	PWM	PWM	PWM	PWM	←	L	L	PWM	←	←	PWM	←	←	L	PWM	←	L	L	PWM	←	←	←	←	L	L	L	PWM	L
100	D-PWM	PWM	L	L	PWM	←	L	PWM	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	L	L	PWM	PWM

Note :
(1) : L in Accel CUE/REV (NTSC SP & SLP modes, PAL SP mode)
(2) : H in Accel CUE/REV (NTSC SP & SLP modes, PAL SP mode)
(3) : L in NTSC SP mode, H in NTSC SLP mode
(4) : H in NTSC SLP mode

7-4-3. Logic Mode Shift Table

Key input / Current Mode	Power (VTR)	Power (Remote control unit)	TIMER REC	EJECT	STOP	FF	REW	PLAY	REC	PAUSE	SL
Power off	Stop	Stop	∗ 1	○	×	×	×	×	×	×	
Abnormal Power off	Stop	Stop	∗ 1	×	×	×	×	×	×	×	
EJECT	Power off	Power off	Error	×	×	×	×	×	×	×	
STOP	Power off	Power off	∗ 1	○	○	○	○	○	○*5	×	
FF	Power off	Power off	∗ 1	○	○	Cue(L)	○	○	×	×	
REW	Power off	Power off	∗ 1	○	○	○	Review (L)	○	×	×	
PLAY	Power off	Power off	∗ 1	○	○	Cue(L)	Review (L)	×	×	STILL	Sl (H
REC	Power off	Power off	∗ 1	×	○	×	×	×	*6	○	
REC(TIMER)	Stop	×	Power off	×	×	×	×	×	×	×	
REC PAUSE	Power off	Power off	∗ 1	×	○	×	×	×	×	REC	
REC PAUSE (TIMER)	Stop	×	Power off	×	×	×	×	×	×	×	
CUE (L)	Power off	Power off	∗ 1	○	○	○*2	Review (L)	○	×	×	
REVIEW (L)	Power off	Power off	∗ 1	○	○	Cue(L)	○*3	○	×	×	
STILL	Power off	Power off	∗ 1	○	○	Cue(L)	Review (L)	*4	*7	PLAY	Sl (H
SLOW (L)	Power off	Power off	∗ 1	○	○	Cue(L)	Review (L)	○	×	STILL	Sl (H
SLOW (H)	Power off	Power off	∗ 1	○	○	Cue(L)	Review (L)	○	×	STILL	Sl (H
R. STILL	Power off	Power off	∗ 1	○	○	Cue(L)	Review (L)	*4	*7	PLAY	Sl (H
AUDIO dubbing	Power off	Power off	∗ 1	×	○	×	×	×	×	Audio dubbing pause	
AUDIO dubbing pause	Power off	Power off	∗ 1	×	○	×	×	×	×	Audio dubbing	

Note 1:

Cue (L)/Review (L) .... X5 (PAL SP/LP mode, NTSC SP/SLP mode)
Cue (H)/Review (H) .... X13 (PAL SP/LP mode), X9 (NTSC SP mod
Slow (L)/Reverse Slow (L) .... 1/12 slow (PAL SP/LP mode), 1/15 slow (NT
Slow (H)/Reverse Slow (H) .... 1/6 slow (PAL SP/LP mode), 1/7 slow (NTSC

*1: When a cassette is loaded with a safety tab, VTR enters Timer Recording Stand-
When a cassette is loaded with a safety tab, VTR displays ERROR on the displa
When a cassette without a safety tab is loaded, VTR displays ERROR on the dis

*2: VTR enters FF mode when pressing FF button continuously for less than 0.7s, a

*3. VTR enters REW mode when pressing REW button continuously for less than 0.

*4: VTR enters FRAME ADVANCE mode when pressing the button once, 1/25 slow ously.

*5: When a cassette is loaded with a safety tab, VTR enters REC mode. When a cas

*6: ONE TOUCH TIMER REC mode (shifts only by key on the VTR)

*7: REC PAUSE mode (When a cassette is loaded without a safety tab, VTR enters

O: Shifts to key input mode. X: No shift (same mode).

SLOW	REC	REC PAUSE	SHUTTLE MODE							Power off	Initial	Audio dubbing	Audio dubbing
SP LP	SP LP	SP LP	STILL SP LP	x2 SP LP	PLAY SP LP	SLOW SP LP	R. Play SP LP	R. Slow SP LP	R. Still SP LP			SP LP	Pause
H	L	L	H	H	L	H	H	H	H	H	H	L	L
H	H	H	H	H	H	H	H	H	H	L	L	H	H
L	H	L	L	L	L	L	L	L	L	L	L	L	L
H	H	H	H	H	H	H	H	H	H	H	L	L	H
L	L	L	L	L	L	L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L	L	L	L	L	L	L
H	L	H	H	H L	L	H	L	H	H	H	H	L	H
L	L	L	L	L L	L	L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L	L	L	H	H	L	L
-	⎍⎍	-	-	-	-	-	-	-	-	-	OPEN	-	-
⎍	⎍⎍	L	L	⎍⎍	←	⎍	⎍⎍	⎍	L	L	L	⎍⎍	H/L
⎍	L	L	L	L	L	⎍	H	⊔	H	H	L	L	L
←	←	←	←	←	←	←	←	←	←	←	L	←	←
←	←	←	←	←	←	←	←	←	←	L	L	L	L
←	←	←	←	←	←	←	←	←	←	←	H	←	←
←	←	←	←	←	←	←	←	←	←	←	H	←	←
H	L	L	H	H	H	H	H	H	H	L	L	L	H
←	←	←	←	←	←	←	←	←	←	←	H	←	←
←	←	←	←	←	←	←	←	←	←	←	H	←	←
←	←	←	←	←	←	←	←	←	←	OPEN	OPEN	⎍	←
⊓⊔	⎍⎍	←	L H	⎍⎍ H	⎍⎍	⊓⊔	←	⊓⊔	L H	L	L	⎍⎍	⎍⎍
←	L H	L H	⎍⎍	←	L H	⎍⎍	← (4)	←	←	L	L	L H	⎍⎍
←	←	←	←	←	←	←	←	←	←	←	L	←	←
←	←	←	←	←	←	←	←	←	←	←	L	←	←
PWM	←	←	L	PWM	←	←	←	←	L	L	500mA	PWM	PWM
PWM	←	L	L	PWM	←	←	←	←	L	L	L	PWM	L
←	←	←	←	←	←	←	←	←	←	L	L	PWM	PWM

7-4-3. Logic Mode Shift Table

Key input / Current Mode	Power (VTR)	Power (Remote control unit)	TIMER REC	EJECT	STOP	FF	REW	PLAY	REC	PAUSE	SLOW	Frame advance	Shuttle Posi. (-5)	Shuttle Posi. (-4)	Shuttle Posi. (-3)	Shuttle Posi. (-2)	Shuttle Posi. (-1)	Shuttle Posi. (1)	Shuttle Posi. (2)	Shuttle Posi. (3)	Shuttle Posi. (4)	Shuttle Posi. (5)	INDEX (+)	INDEX (-)	JOG forward	JOG reverse
Power off	Stop	Stop	* 1	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Abnormal Power off	Stop	Stop	* 1	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
EJECT	Power off	Power off	Error	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
STOP	Power off	Power off	* 1	○	○	○	○	○	○*5	×	×	×	Review (L)	REW	REW	REW	REW	FF	FF	FF	FF	Cue (L)	INDEX search FF	INDEX search REW	×	×
FF	Power off	Power off	* 1	○	○	Cue(L)	○	○	×	×	×	×	Review (L)	REW	REW	REW	REW	FF	FF	FF	FF	Cue (L)	×	×	×	×
REW	Power off	Power off	* 1	○	○	○	Review (L)	○	×	×	×	×	Review (L)	REW	REW	REW	REW	FF	FF	FF	FF	Cue (L)	×	×	×	×
PLAY	Power off	Power off	* 1	○	○	Cue(L)	Review (L)	×	×	STILL	Slow (H)	×	Review (H)	Review (H)	Review (L)	Reverse Play	Reverse Play	Play x2	Play x2	Cue (L)	Cue (H)	Cue (H)	INDEX search FF	INDEX search REW	×	×
REC	Power off	Power off	* 1	×	○	×	×	×	*6	○	×	×	×	×	×	×	×	×	×	×	×	×	Marking	×	×	×
REC(TIMER)	Stop	×	Power off	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	Marking	×	×	×
REC PAUSE	Power off	Power off	* 1	×	○	×	×	×	×	REC	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
REC PAUSE (TIMER)	Stop	×	Power off	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CUE (L)	Power off	Power off	* 1	○	○	○*2	Review (L)	○	×	×	×	×	Review (H)	Review (H)	Review (L)	Reverse Play	Reverse Play	Play x2	Play x2	Cue (L)	Cue (H)	Cue (H)	×	×	×	×
REVIEW (L)	Power off	Power off	* 1	○	○	Cue(L)	○*3	○	×	×	×	×	Review (H)	Review (H)	Review (L)	Reverse Play	Reverse Play	Play x2	Play x2	Cue (L)	Cue (H)	Cue (H)	×	×	×	×
STILL	Power off	Power off	* 1	○	○	Cue(L)	Review (L)	*4	*7	PLAY	Slow (H)	*4	Review (H)	Review (L)	Reverse Play	Reverse Slow(H)	Reverse Slow(L)	Slow (L)	Slow (H)	PLAY	Cue (L)	Cue (H)	Rewrite	Erase	Frame advance forward	Frame advance reverse
SLOW (L)	Power off	Power off	* 1	○	○	Cue(L)	Review (L)	○	×	STILL	Slow (H)	×	Review (H)	Review (L)	Reverse Play	Reverse Slow(H)	Reverse Slow(L)	Slow (L)	Slow (H)	PLAY	Cue (L)	Cue (H)	×	×	×	×
SLOW (H)	Power off	Power off	* 1	○	○	Cue(L)	Review (L)	○	×	STILL	Slow (H)	×	Review (H)	Review (L)	Reverse Play	Reverse Slow(H)	Reverse Slow(L)	Slow (L)	Slow (H)	PLAY	Cue (L)	Cue (H)	×	×	×	×
R. STILL	Power off	Power off	* 1	○	○	Cue(L)	Review (L)	*4	*7	PLAY	Slow (H)	*4	Review (H)	Review (L)	Reverse Play	Reverse Slow(H)	Reverse Slow(L)	Slow (L)	Slow (H)	PLAY	Cue (L)	Cue (H)	Rewrite	Erase	Frame advance forward	Frame advance reverse
AUDIO dubbing	Power off	Power off	* 1	×	○	×	×	×	×	Audio dubbing pause	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
AUDIO dubbing pause	Power off	Power off	* 1	×	○	×	×	×	×	Audio dubbing	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

Note 1:

Cue (L)/Review (L)	X5 (PAL SP/LP mode, NTSC SP/SLP mode)
Cue (H)/Review (H)	X13 (PAL SP/LP mode), X9 (NTSC SP mode), X27 (NTSC SLP mode)
Slow (L)/Reverse Slow (L)	1/12 slow (PAL SP/LP mode), 1/15 slow (NTSC SP/SLP mode)
Slow (H)/Reverse Slow (H)	1/6 slow (PAL SP/LP mode), 1/7 slow (NTSC SP/SLP mode)

*1: When a cassette is loaded with a safety tab, VTR enters Timer Recording Stand-by mode if timer recording is reserved.
When a cassette is loaded with a safety tab, VTR displays ERROR on the display if timer recording is not reserved.
When a cassette without a safety tab is loaded, VTR displays ERROR on the display and ejects the tape.

*2: VTR enters FF mode when pressing FF button continuously for less than 0.7s, and CUE (H) mode when pressing FF button continuously for more than 0.7s.

*3. VTR enters REW mode when pressing REW button continuously for less than 0.7s, and REVIEW (H) mode when pressing REW button continuously for more than 0.7s.

*4: VTR enters FRAME ADVANCE mode when pressing the button once, 1/25 slow in PAL SP/LP mode and 1/30 slow in NTSC SP/SLP mode when pressing the button continuously.

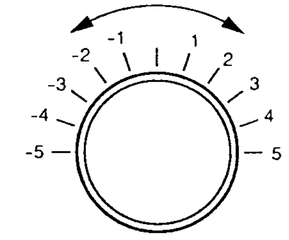
*5: When a cassette is loaded with a safety tab, VTR enters REC mode. When a cassette is loaded without a safety tab, VTR enters EJECT mode.

*6: ONE TOUCH TIMER REC mode (shifts only by key on the VTR)

*7: REC PAUSE mode (When a cassette is loaded without a safety tab, VTR enters EJECT mode.)

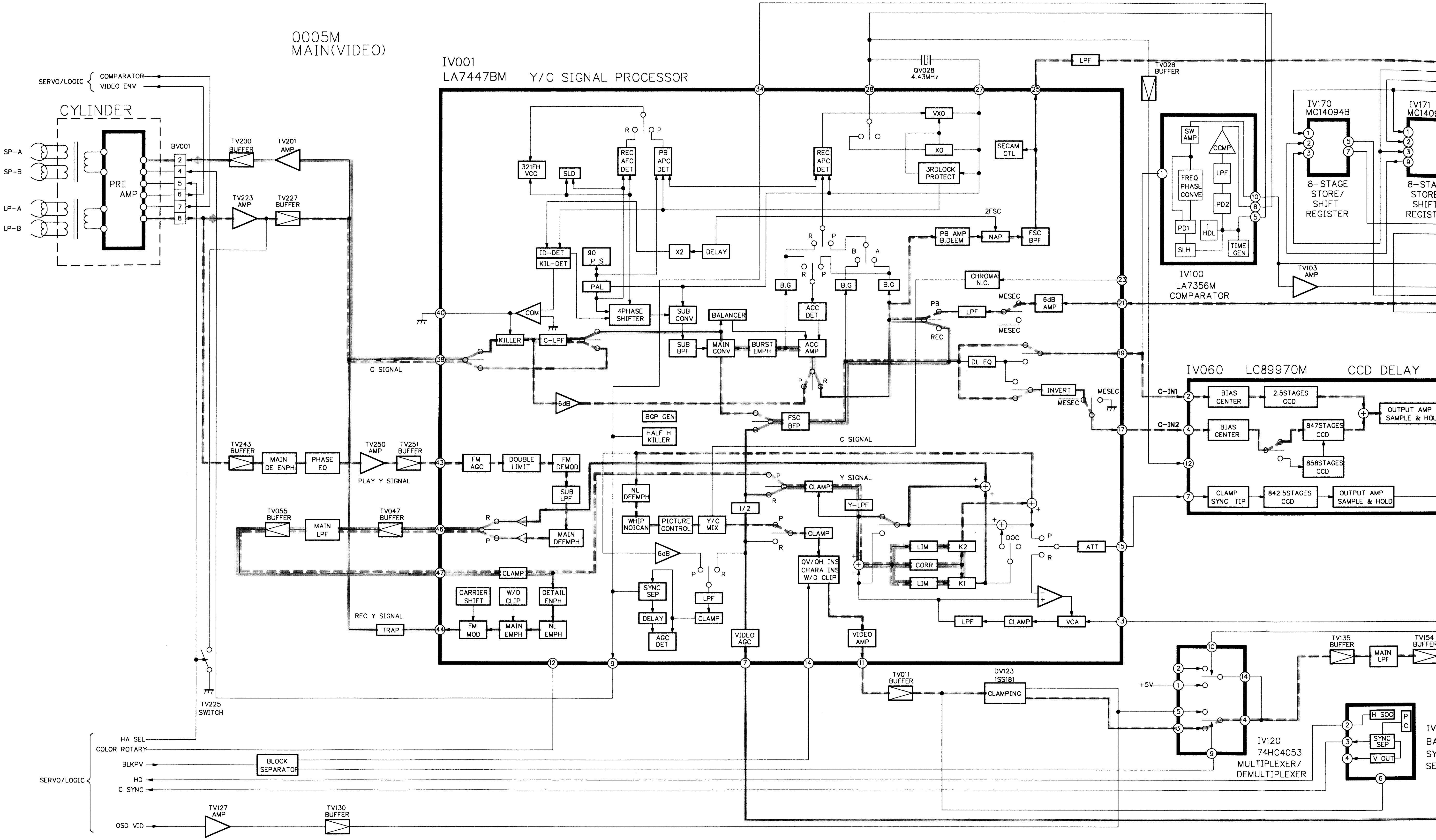
O: Shifts to key input mode. X: No shift (same mode).

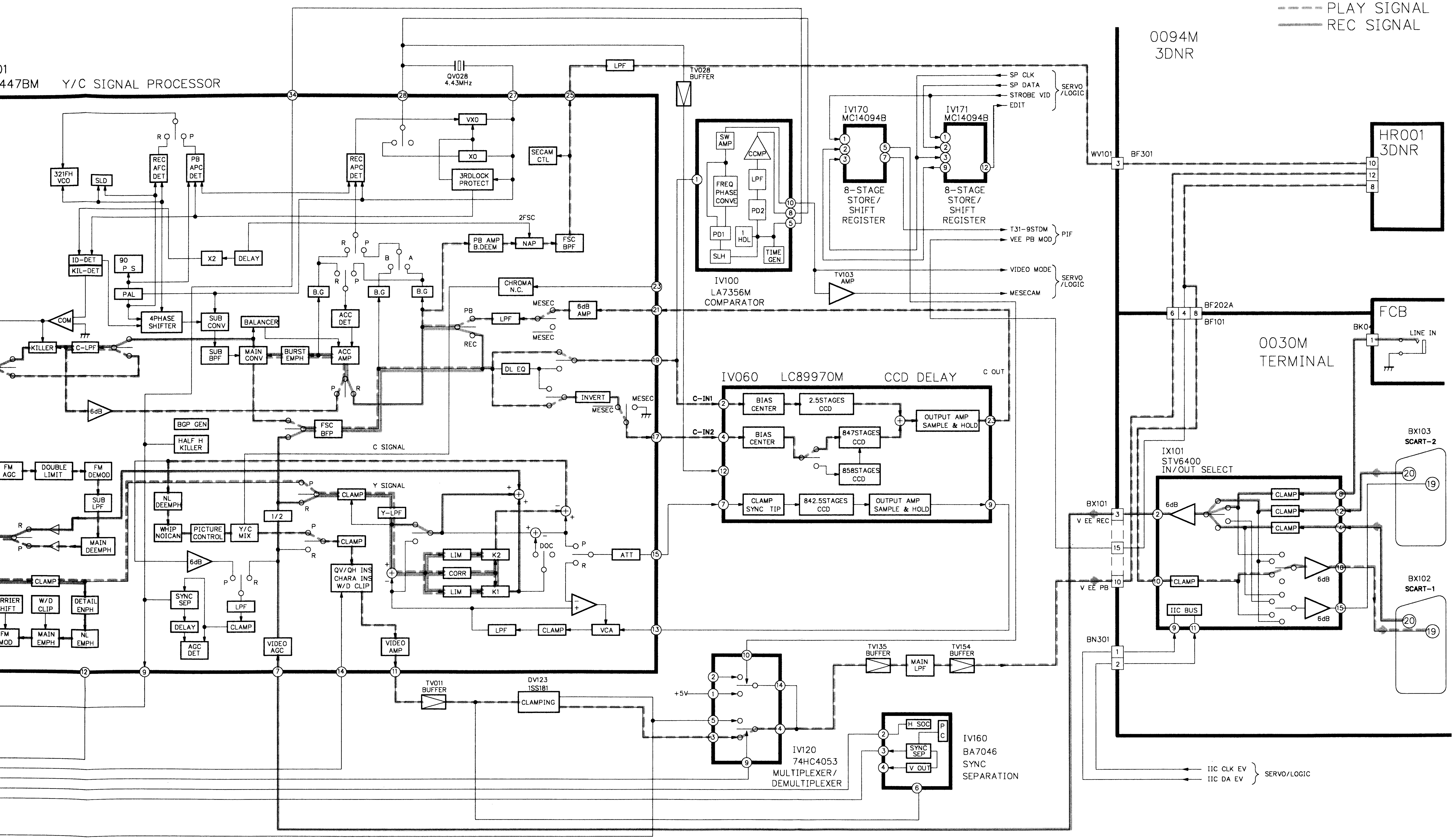
Note 2:



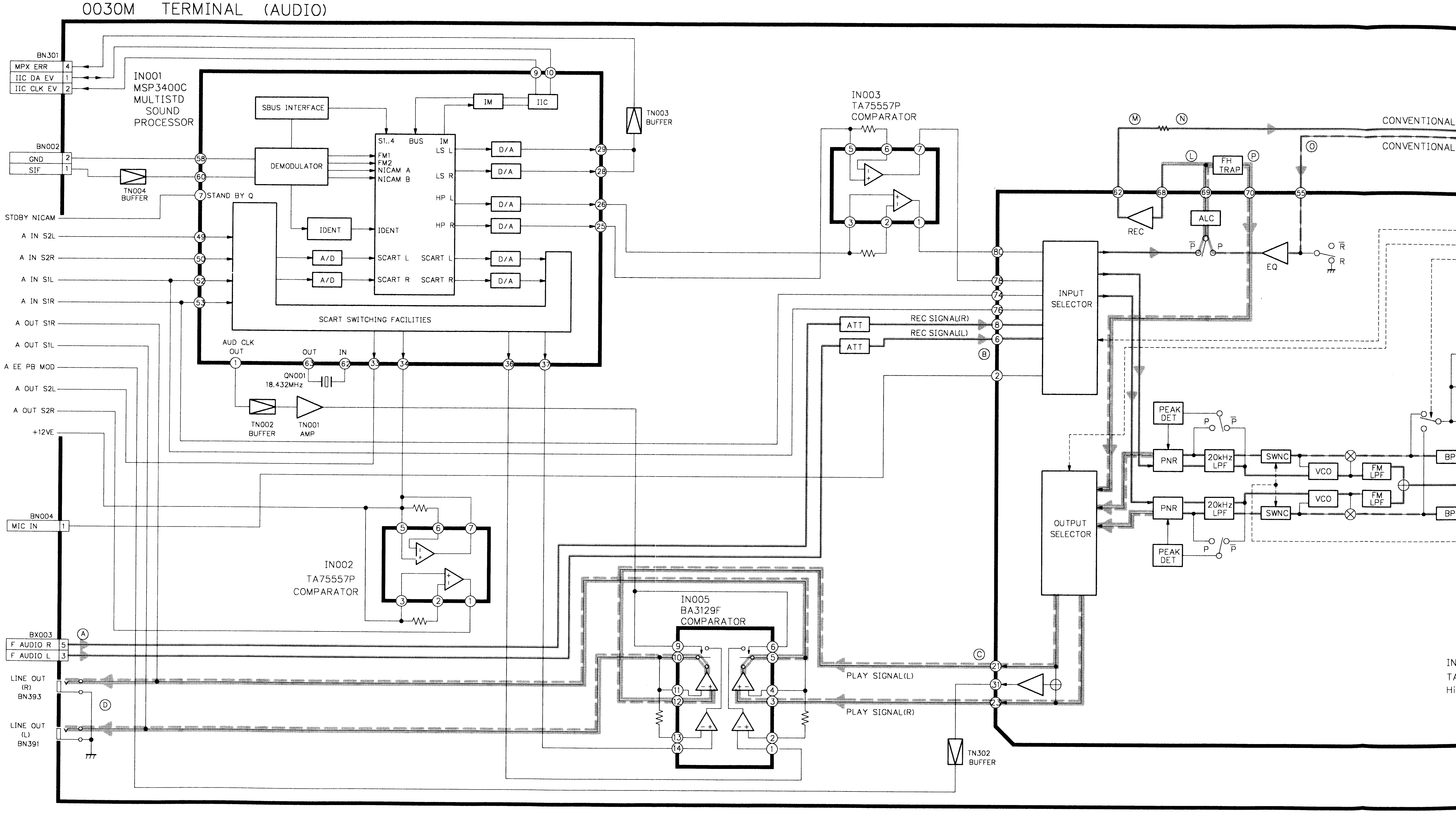
SHUTTLE POSITION

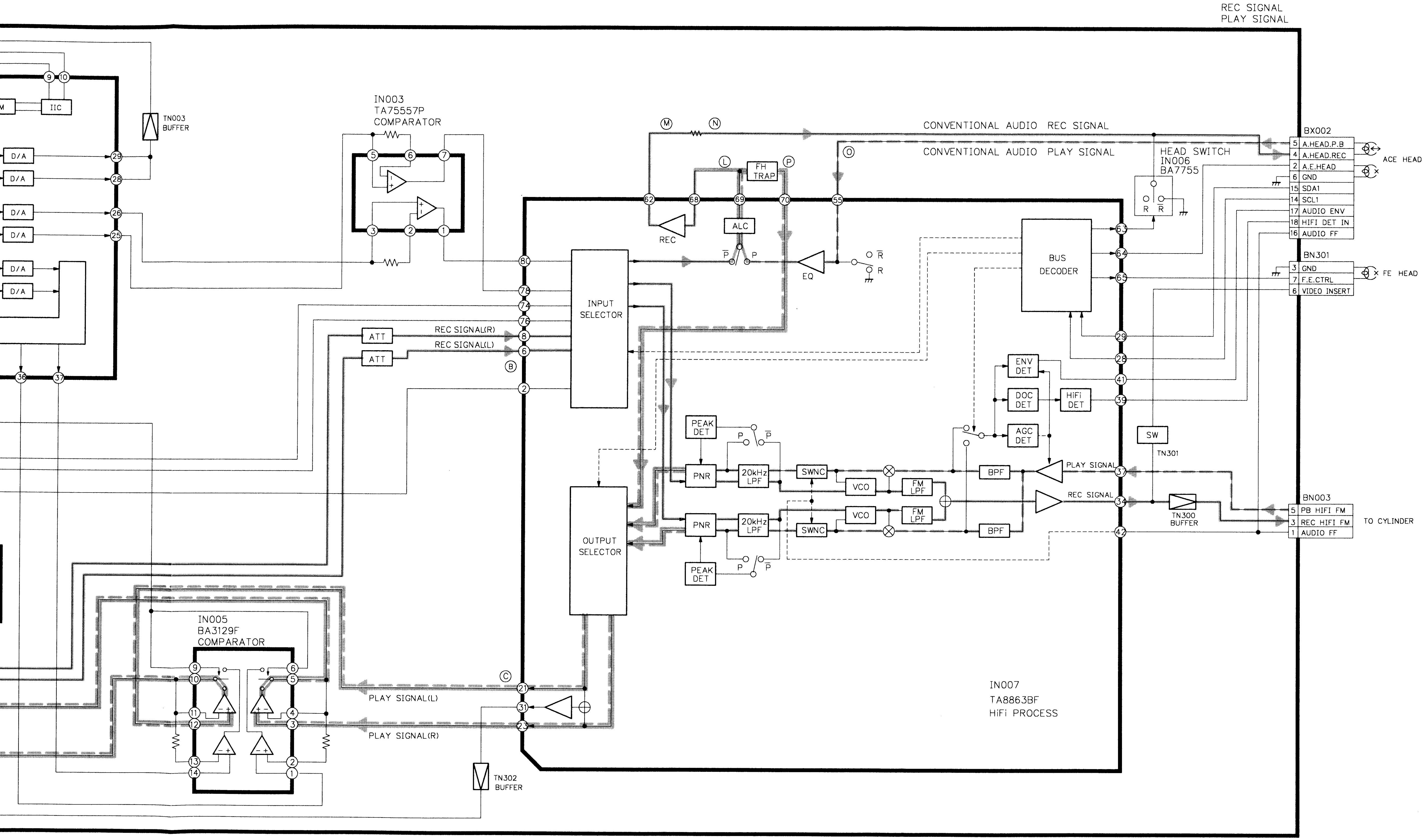
7-5. VIDEO BLOCK DIAGRAMS


0005M
MAIN(VIDEO)
IV001
LA7447BM Y/C SIGNAL PROCESSOR
SERVO/LOGIC
COMPARATOR
VIDEO ENV
CYLINDER
SP-A
SP-B
LP-A
LP-B
PRE AMP
BV001
TV200 BUFFER
TV201 AMP
TV223 AMP
TV227 BUFFER
TV243 BUFFER
MAIN DE ENPH
PHASE EQ
TV250 AMP
TV251 BUFFER
PLAY Y SIGNAL
TV055 BUFFER
MAIN LPF
TV047 BUFFER
C SIGNAL
REC Y SIGNAL
TRAP
TV225 SWITCH
HA SEL
COLOR ROTARY
BLKPV
HD
C SYNC
BLOCK SEPARATOR
OSD VID
TV127 AMP
TV130 BUFFER
321FH VCO
SLD
REC AFC DET
PB APC DET
R
P
ID-DET
KIL-DET
90 P S
PAL
X2
DELAY
4PHASE SHIFTER
SUB CONV
BALANCER
SUB BPF
MAIN CONV
BURST EMPH
ACC AMP
ACC DET
COM
KILLER
C-LPF
6dB
BGP GEN
HALF H KILLER
FSC BFP
FM AGC
DOUBLE LIMIT
FM DEMOD
SUB LPF
MAIN DEEMPH
CLAMP
CARRIER SHIFT
W/D CLIP
DETAIL ENPH
FM MOD
MAIN EMPH
NL EMPH
NL DEEMPH
WHIP NOICAN
PICTURE CONTROL
Y/C MIX
1/2
SYNC SEP
AGC DET
LPF
VIDEO AGC
Y SIGNAL
Y-LPF
QV/QH INS CHARA INS W/D CLIP
VIDEO AMP
LIM
CORR
K1
K2
DOC
ATT
VCA
INVERT
MESEC
DL EQ
REC APC DET
VXO
XO
3RDLOCK PROTECT
SECAM CTL
QV028 4.43MHz
2FSC
PB AMP B.DEEM
NAP
FSC BPF
B.G
B
A
CHROMA N.C.
6dB AMP
PB
REC
TV028 BUFFER
IV100
LA7356M
COMPARATOR
SW AMP
CCMP
FREQ PHASE CONVE
LPF
PD1
PD2
SLH
1 HDL
TIME GEN
IV170
MC14094B
8-STAGE STORE/ SHIFT REGISTER
IV171
MC140
8-STA STORE SHIFT REGIST
TV103 AMP
IV060 LC89970M CCD DELAY
C-IN1
C-IN2
BIAS CENTER
2.5STAGES CCD
847STAGES CCD
858STAGES CCD
OUTPUT AMP SAMPLE & HOL
CLAMP SYNC TIP
842.5STAGES CCD
OUTPUT AMP SAMPLE & HOLD
TV011 BUFFER
DV123 1SS181
CLAMPING
+5V
IV120
74HC4053
MULTIPLEXER/ DEMULTIPLEXER
TV135 BUFFER
MAIN LPF
TV154 BUFFE
H SOC
SYNC SEP
V OUT
P C
IV
BA
SY
SE

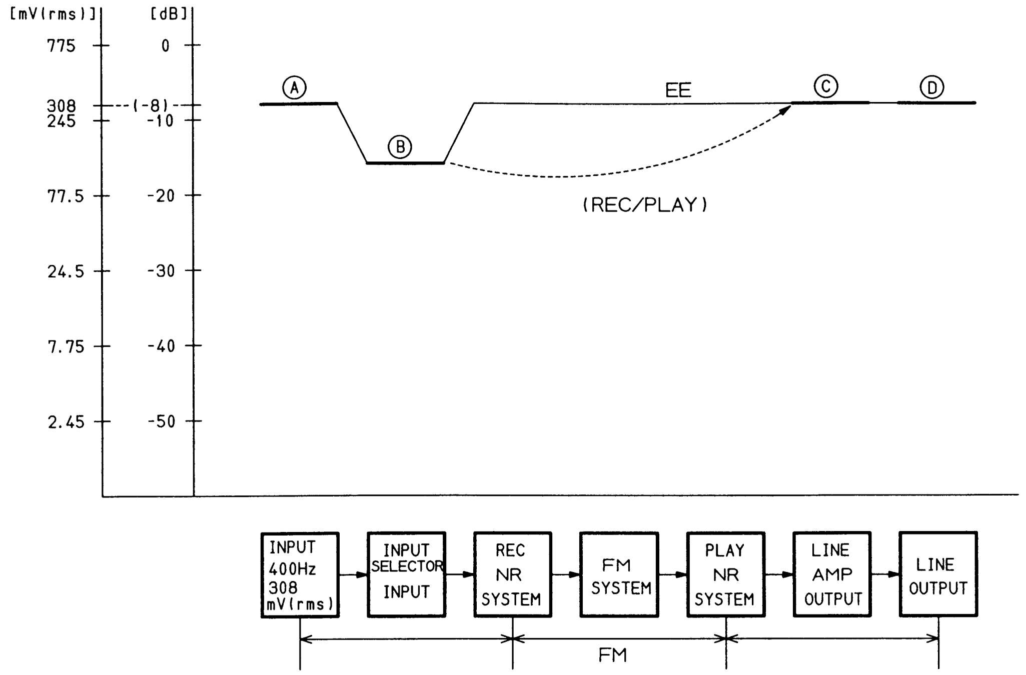

PLAY SIGNAL
REC SIGNAL
01
447BM Y/C SIGNAL PROCESSOR
QV028 4.43MHz
LPF
TV028 BUFFER
0094M 3DNR
VXO
XO
3RDLOCK PROTECT
SECAM CTL
REC AFC DET
PB APC DET
REC APC DET
321FH VCO
SLD
ID-DET
KIL-DET
90 P S
PAL
X2
DELAY
2FSC
PB AMP B.DEEM
NAP
FSC BPF
B.G
ACC DET
CHROMA N.C.
MESEC
6dB AMP
COM
KILLER
C-LPF
4PHASE SHIFTER
SUB CONV
BALANCER
SUB BPF
MAIN CONV
BURST EMPH
ACC AMP
PB
REC
LPF
DL EQ
INVERT
6dB
BGP GEN
HALF H KILLER
FSC BFP
C SIGNAL
Y SIGNAL
FM AGC
DOUBLE LIMIT
FM DEMOD
SUB LPF
NL DEEMPH
WHIP NOICAN
PICTURE CONTROL
Y/C MIX
MAIN DEEMPH
CLAMP
Y-LPF
1/2
QV/QH INS CHARA INS W/D CLIP
LIM
CORR
K1
K2
DOC
ATT
VCA
RRIER HIFT
W/D CLIP
DETAIL ENPH
SYNC SEP
FM MOD
MAIN EMPH
NL EMPH
AGC DET
VIDEO AGC
VIDEO AMP
TV011 BUFFER
DV123 1SS181
CLAMPING
IV100 LA7356M COMPARATOR
SW AMP
CCMP
FREQ PHASE CONVE
PD1
PD2
1 HDL
SLH
TIME GEN
IV170 MC14094B
IV171 MC14094B
8-STAGE STORE/ SHIFT REGISTER
SP CLK
SP DATA
STROBE VID
EDIT
SERVO /LOGIC
T31-9STDM
VEE PB MOD
PIF
VIDEO MODE
MESECAM
TV103 AMP
IV060 LC89970M CCD DELAY
C OUT
C-IN1
C-IN2
BIAS CENTER
2.5STAGES CCD
847STAGES CCD
858STAGES CCD
OUTPUT AMP SAMPLE & HOLD
CLAMP SYNC TIP
842.5STAGES CCD
+5V
IV120 74HC4053 MULTIPLEXER/ DEMULTIPLEXER
TV135 BUFFER
MAIN LPF
TV154 BUFFER
IV160 BA7046 SYNC SEPARATION
H SOC
SYNC SEP
V OUT
P C
HR001 3DNR
WV101
BF301
BF202A
BF101
FCB
BK0
LINE IN
0030M TERMINAL
IX101 STV6400 IN/OUT SELECT
BX101
V EE REC
V EE PB
IIC BUS
BX103 SCART-2
BX102 SCART-1
BN301
IIC CLK EV
IIC DA EV
SERVO/LOGIC

7-6. AUDIO BLOCK DIAGRAMS

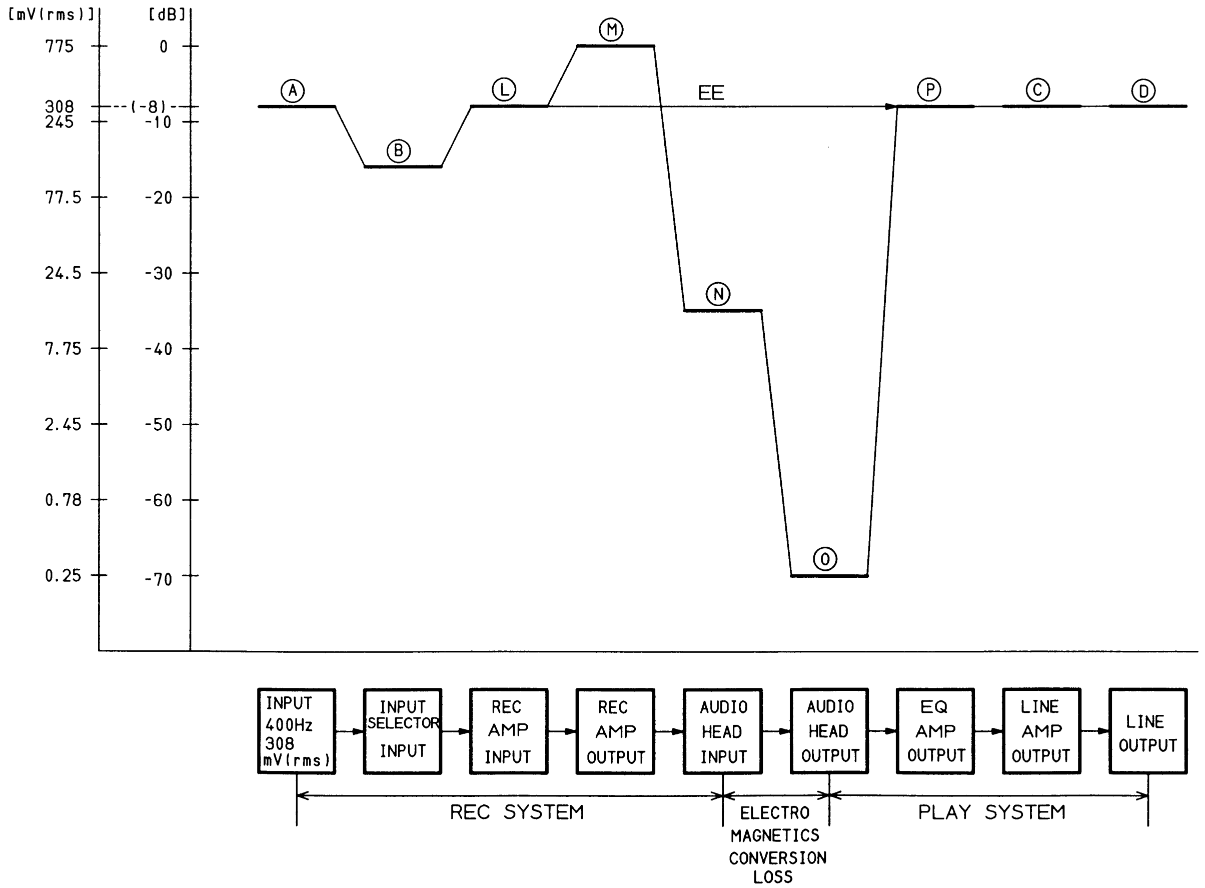

0030M TERMINAL (AUDIO)
BN301
MPX ERR
IIC DA EV
IIC CLK EV
IN001
MSP3400C
MULTISTD
SOUND
PROCESSOR
SBUS INTERFACE
IM
IIC
DEMODULATOR
S1..4
BUS
FM1
FM2
NICAM A
NICAM B
LS L
LS R
HP L
HP R
D/A
IDENT
A/D
SCART L
SCART R
SCART SWITCHING FACILITIES
STAND BY Q
AUD CLK OUT
OUT
IN
QN001
18.432MHz
TN002
BUFFER
TN001
AMP
TN003
BUFFER
TN004
BUFFER
BN002
GND
SIF
STDBY NICAM
A IN S2L
A IN S2R
A IN S1L
A IN S1R
A OUT S1R
A OUT S1L
A EE PB MOD
A OUT S2L
A OUT S2R
+12VE
BN004
MIC IN
IN002
TA75557P
COMPARATOR
IN003
TA75557P
COMPARATOR
IN005
BA3129F
COMPARATOR
BX003
F AUDIO R
F AUDIO L
LINE OUT
(R)
BN393
LINE OUT
(L)
BN391
ATT
REC SIGNAL(R)
REC SIGNAL(L)
PLAY SIGNAL(L)
PLAY SIGNAL(R)
TN302
BUFFER
INPUT
SELECTOR
OUTPUT
SELECTOR
CONVENTIONAL
CONVENTIONAL
FH
TRAP
ALC
REC
EQ
P̄
P
R̄
R
PEAK
DET
PNR
20kHz
LPF
SWNC
VCO
FM
LPF
BP
IN
TA
Hi
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓛ
Ⓜ
Ⓝ
Ⓞ
Ⓟ


REC SIGNAL
PLAY SIGNAL
IIC
D/A
TN003
BUFFER
IN003
TA75557P
COMPARATOR
CONVENTIONAL AUDIO REC SIGNAL
CONVENTIONAL AUDIO PLAY SIGNAL
FH TRAP
ALC
REC
EQ
HEAD SWITCH
IN006
BA7755
BUS DECODER
INPUT SELECTOR
OUTPUT SELECTOR
ATT
REC SIGNAL(R)
REC SIGNAL(L)
PEAK DET
PNR
20kHz LPF
SWNC
VCO
FM LPF
BPF
ENV DET
DOC DET
HiFi DET
AGC DET
PLAY SIGNAL
REC SIGNAL
SW
TN301
TN300
BUFFER
BX002
5 A.HEAD.P.B
4 A.HEAD.REC
2 A.E.HEAD
6 GND
15 SDA1
14 SCL1
17 AUDIO ENV
18 HIFI DET IN
16 AUDIO FF
ACE HEAD
BN301
3 GND
7 F.E.CTRL
6 VIDEO INSERT
FE HEAD
BN003
5 PB HIFI FM
3 REC HIFI FM
1 AUDIO FF
TO CYLINDER
IN005
BA3129F
COMPARATOR
PLAY SIGNAL(L)
PLAY SIGNAL(R)
TN302
BUFFER
IN007
TA8863BF
HiFi PROCESS

7-6-1. Hi-Fi Audio Level Chart

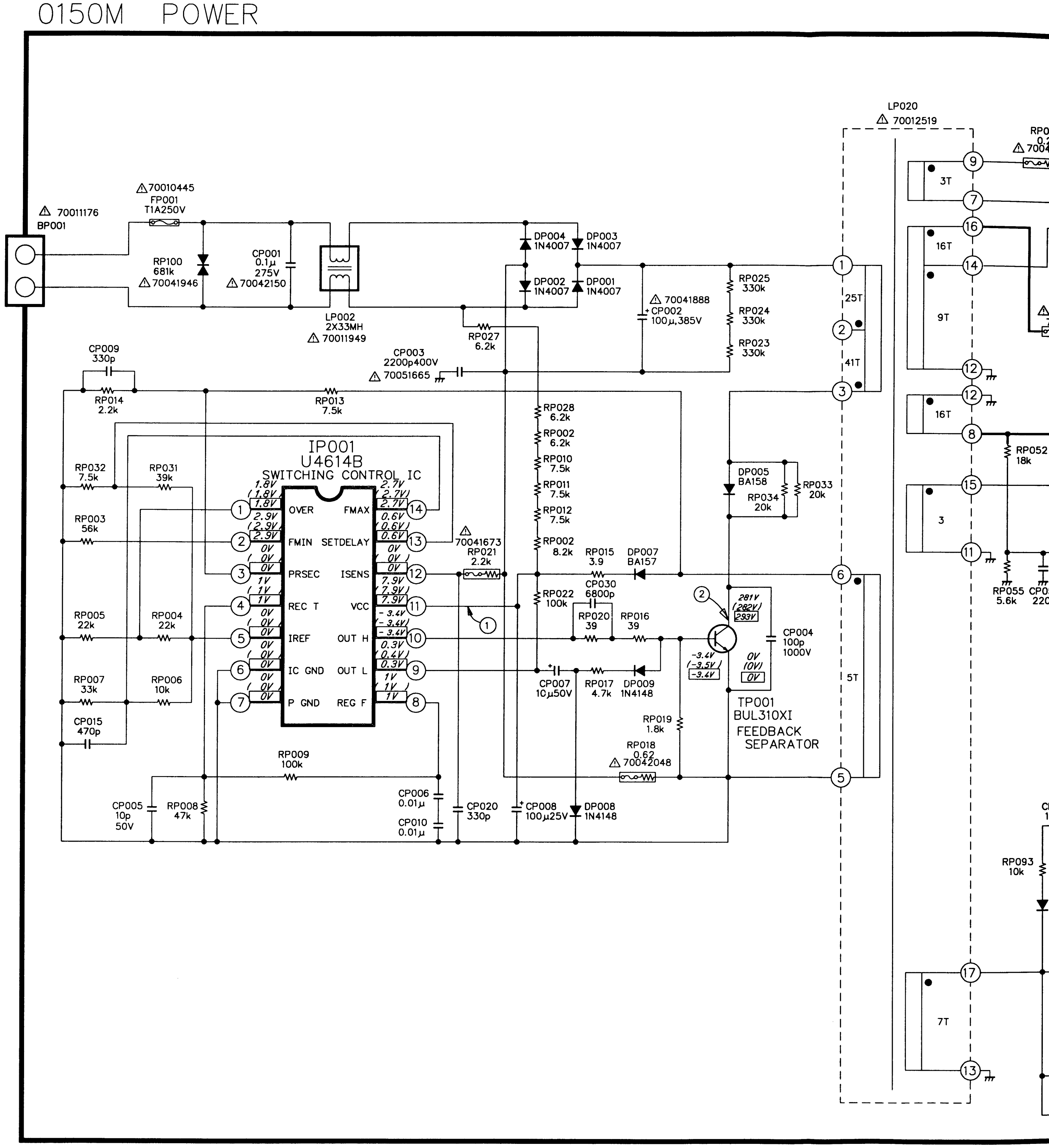


7-6-2. Conventional Audio Level Chart



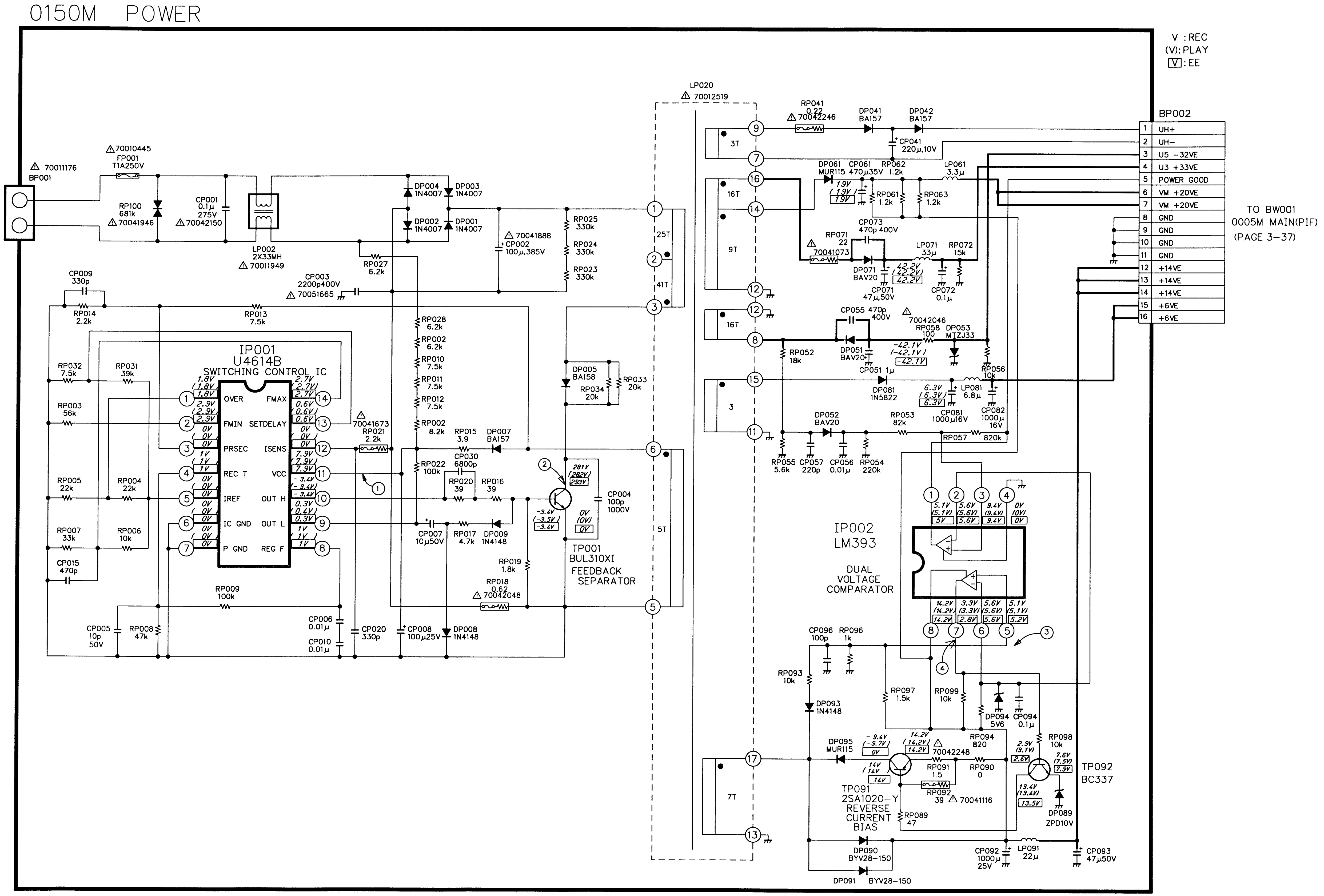
8. CIRCUIT DIAGRAMS

8-1. POWER CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
F
G
0150M POWER
⚠ 70011176
BP001
⚠70010445
FP001
T1A250V
RP100
681k
⚠70041946
CP001
0.1µ
275V
⚠70042150
LP002
2X33MH
⚠70011949
DP004
1N4007
DP003
1N4007
DP002
1N4007
DP001
1N4007
⚠ 70041888
CP002
100µ,385V
RP025
330k
RP024
330k
RP023
330k
RP027
6.2k
CP003
2200p400V
⚠ 70051665
CP009
330p
RP014
2.2k
RP013
7.5k
RP028
6.2k
RP002
6.2k
RP010
7.5k
RP011
7.5k
RP012
7.5k
RP002
8.2k
IP001
U4614B
SWITCHING CONTROL IC
OVER
FMIN
PRSEC
REC T
IREF
IC GND
P GND
FMAX
SETDELAY
ISENS
VCC
OUT H
OUT L
REG F
1.6V
(1.6V)
1.6V
2.9V
(2.9V)
2.9V
0V
(0V)
0V
1V
(1V)
1V
2.7V
(2.7V)
2.7V
0.6V
(0.6V)
0.6V
7.9V
(7.9V)
7.9V
-3.4V
(-3.4V)
-3.4V
0.3V
(0.4V)
0.3V
RP032
7.5k
RP031
39k
RP003
56k
RP005
22k
RP004
22k
RP007
33k
RP006
10k
CP015
470p
⚠
70041673
RP021
2.2k
RP015
3.9
DP007
BA157
CP030
6800p
RP022
100k
RP020
39
RP016
39
CP007
10µ50V
RP017
4.7k
DP009
1N4148
RP019
1.8k
RP018
0.62
⚠ 70042048
RP009
100k
CP005
10p
50V
RP008
47k
CP006
0.01µ
CP010
0.01µ
CP020
330p
CP008
100µ25V
DP008
1N4148
DP005
BA158
RP034
20k
RP033
20k
281V
(262V)
293V
-3.4V
(-3.5V)
-3.4V
0V
(0V)
0V
CP004
100p
1000V
TP001
BUL310XI
FEEDBACK SEPARATOR
LP020
⚠ 70012519
25T
41T
5T
3T
16T
9T
16T
3
7T
RP052
18k
RP055
5.6k
RP093
10k

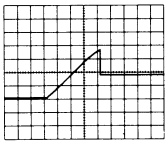
8. CIRCUIT DIAGRAMS

8-1. POWER CIRCUIT DIAGRAM



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
0150M POWER
V :REC
(V): PLAY
V :EE
BP001
⚠ 70011176
⚠70010445
FP001
T1A250V
RP100
681k
⚠70041946
CP001
0.1µ
275V
⚠70042150
LP002
2X33MH
⚠70011949
DP004 1N4007
DP003 1N4007
DP002 1N4007
DP001 1N4007
⚠ 70041888
CP002
100µ,385V
RP025 330k
RP024 330k
RP023 330k
CP003
2200p400V
⚠ 70051665
RP027
6.2k
CP009
330p
RP014
2.2k
RP013
7.5k
RP028 6.2k
RP002 6.2k
RP010 7.5k
RP011 7.5k
RP012 7.5k
RP002 8.2k
IP001
U4614B
SWITCHING CONTROL IC
RP032 7.5k
RP031 39k
RP003 56k
RP005 22k
RP004 22k
RP007 33k
RP006 10k
CP015 470p
OVER
FMAX
FMIN
SETDELAY
PRSEC
ISENS
REC T
VCC
IREF
OUT H
IC GND
OUT L
P GND
REG F
1.8V
(1.8V)
2.9V
(2.9V)
0V
1V
(1V)
2.7V
(2.7V)
0.6V
(0.6V)
7.9V
(7.9V)
-3.4V
(-3.4V)
0.3V
(0.4V)
⚠ 70041673
RP021
2.2k
RP015
3.9
DP007
BA157
CP030
6800p
RP022
100k
RP020
39
RP016
39
CP007
10µ50V
RP017
4.7k
DP009
1N4148
281V
(282V)
293V
-3.4V
(-3.5V)
-3.4V
CP004
100p
1000V
TP001
BUL310XI
FEEDBACK
SEPARATOR
DP005
BA158
RP034
20k
RP033
20k
RP019
1.8k
RP018
0.62
⚠ 70042048
RP009
100k
CP005
10p
50V
RP008
47k
CP006
0.01µ
CP010
0.01µ
CP020
330p
CP008
100µ25V
DP008
1N4148
LP020
⚠ 70012519
25T
41T
5T
3T
16T
9T
3
7T
RP041
0.22
⚠ 70042246
DP041
BA157
DP042
BA157
CP041
220µ,10V
DP061 MUR115
CP061 470µ35V
RP062 1.2k
LP061 3.3µ
1.9V
(1.9V)
RP061 1.2k
RP063 1.2k
CP073
470p 400V
RP071
22
⚠ 70041073
DP071
BAV20
CP071
47µ,50V
42.2V
(42.2V)
LP071
33µ
RP072
15k
CP072
0.1µ
CP055 470p 400V
⚠ 70042046
RP058 100
DP053 MTZJ33
RP052 18k
DP051 BAV20
-42.1V
(-42.1V)
CP051 1µ
RP056 10k
DP081 1N5822
6.3V
(6.3V)
LP081 6.8µ
CP081 1000µ16V
CP082 1000µ 16V
DP052 BAV20
RP053 82k
RP057 820k
RP055 5.6k
CP057 220p
CP056 0.01µ
RP054 220k
BP002
1 UH+
2 UH-
3 U5 -32VE
4 U3 +33VE
5 POWER GOOD
6 VM +20VE
7 VM +20VE
8 GND
9 GND
10 GND
11 GND
12 +14VE
13 +14VE
14 +14VE
15 +6VE
16 +6VE
TO BW001
0005M MAIN(PIF)
(PAGE 3-37)
IP002
LM393
DUAL
VOLTAGE
COMPARATOR
5.1V
(5.1V)
5V
5.6V
(5.6V)
9.4V
(9.4V)
0V
(0V)
14.2V
(14.2V)
3.3V
(3.3V)
2.8V
5.6V
(5.6V)
5.1V
(5.1V)
5.2V
CP096
100p
RP096
1k
RP093
10k
DP093
1N4148
RP097
1.5k
RP099
10k
DP094
5V6
CP094
0.1µ
DP095
MUR115
-9.4V
(-9.7V)
14.2V
(14.2V)
⚠ 70042248
RP094
820
RP098
10k
14V
(14V)
RP091
1.5
RP090
0
RP092
39 ⚠ 70041116
2.9V
(3.1V)
2.8V
7.6V
(7.5V)
7.9V
13.4V
(13.4V)
13.5V
TP091
2SA1020-Y
REVERSE
CURRENT
BIAS
RP089
47
TP092
BC337
DP089
ZPD10V
DP090
BYV28-150
DP091 BYV28-150
CP092
1000µ
25V
LP091
22µ
CP093
47µ50V

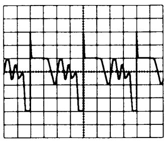
① IP001, Pin ⑪ E-4



START-UP
Vcc

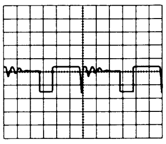
V:50V/div
H:10ms/div

② TP001, Collector D-5



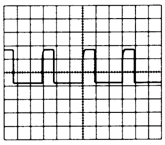
V:550Vp-p
H:40μs/div

③ IP002, Pin ⑤ F-9



V:1V/div
H:5μs/div

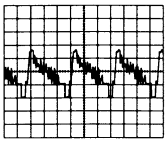
④ IP002, Pin ⑦ F-8



V:5V/div
H:10μs/div

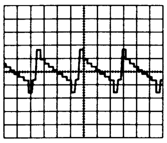
8-2. PIF CIRCUIT DIAGRAM

① 0020M, Pin ⑥ E-7



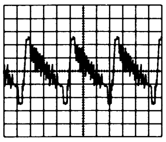
V:1V/div
H:20µs/div

② 0020M, Pin ① D-6



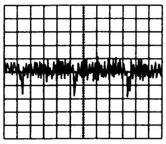
V:500mV/div
H:20µs/div

③ 0010M, Pin ⑤ C-7

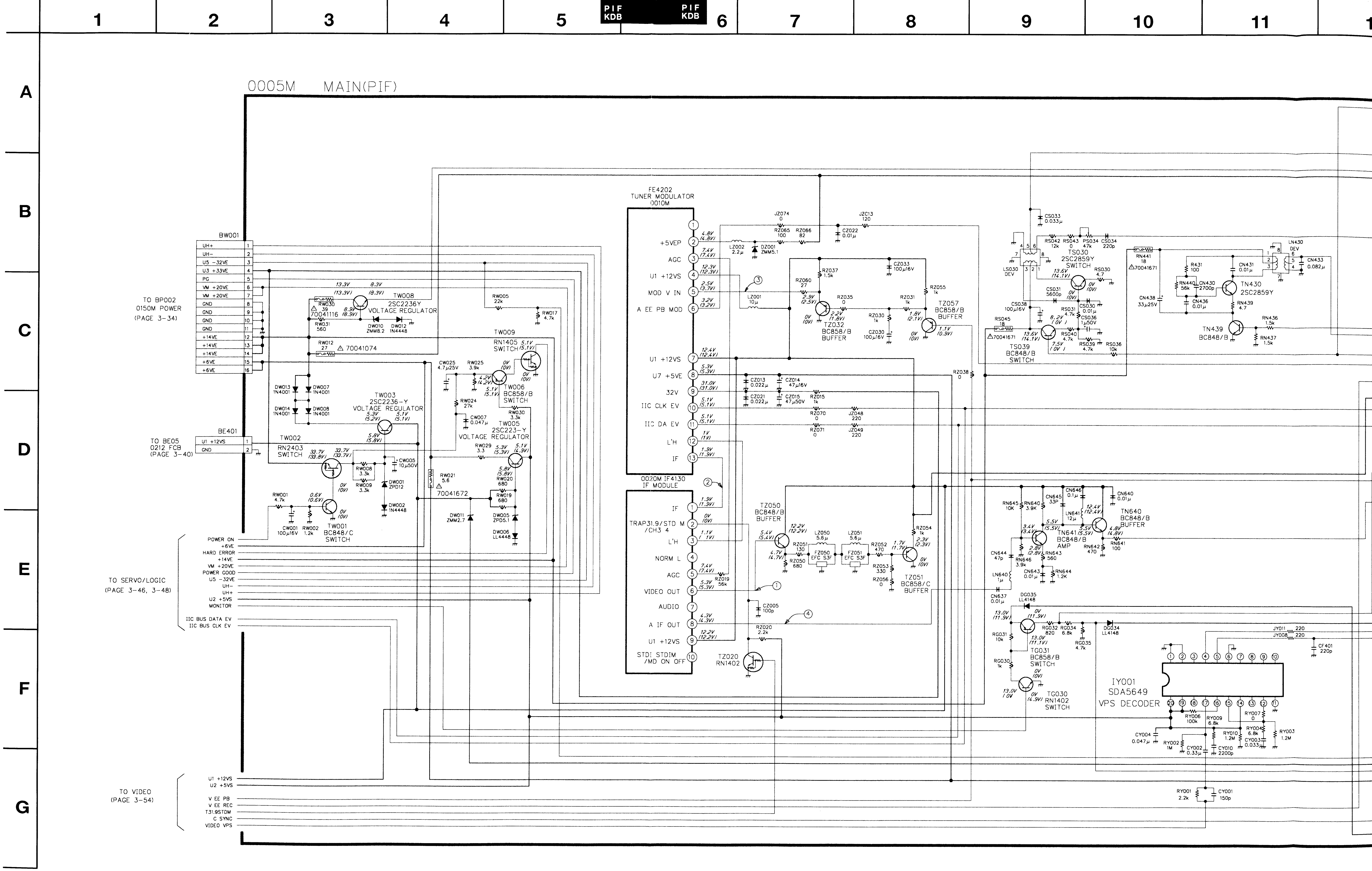


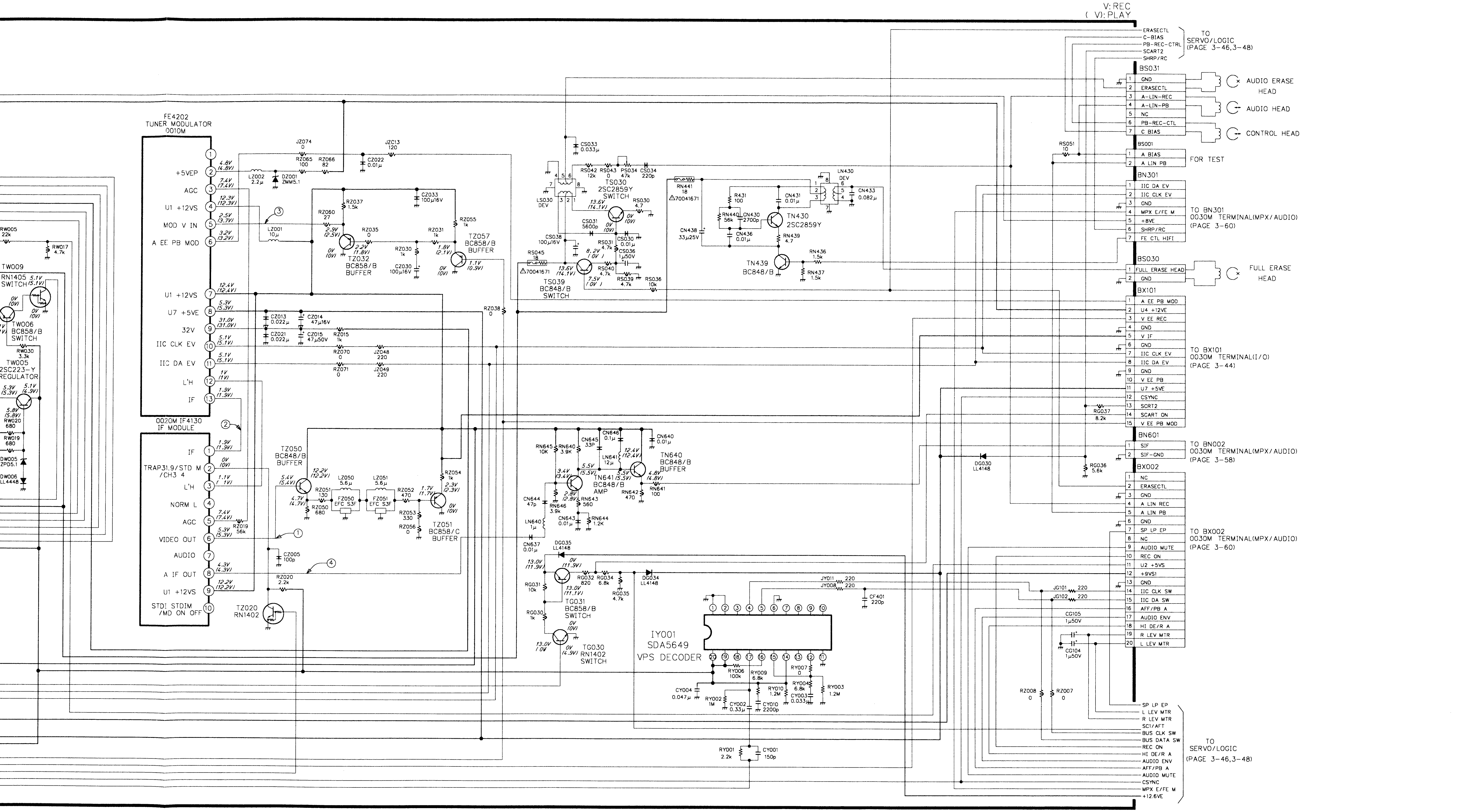
V:200mV/div
H:20µs/div

④ 0020M, Pin ⑧ E-7

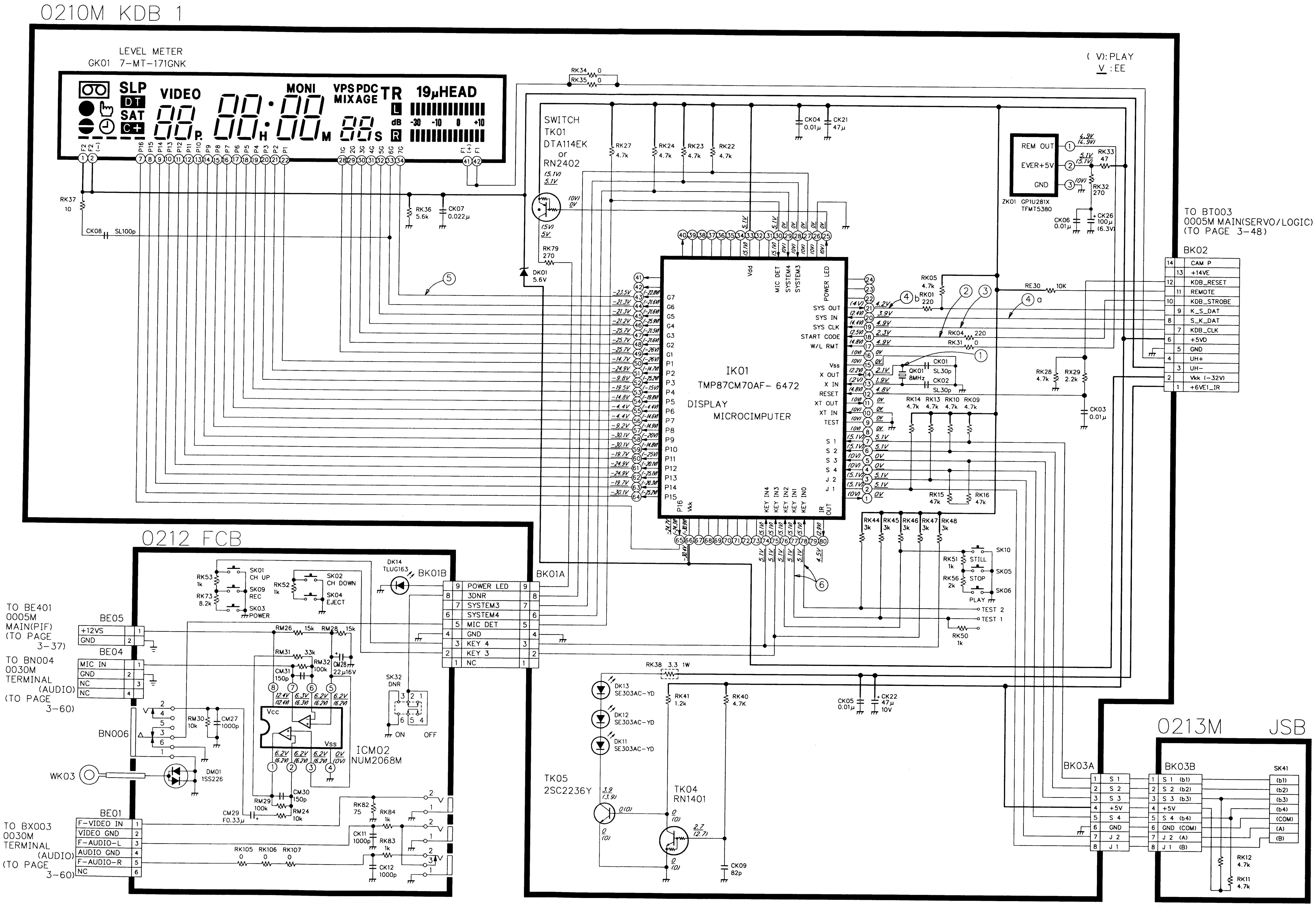


V:500mV/div
H:5ms/div

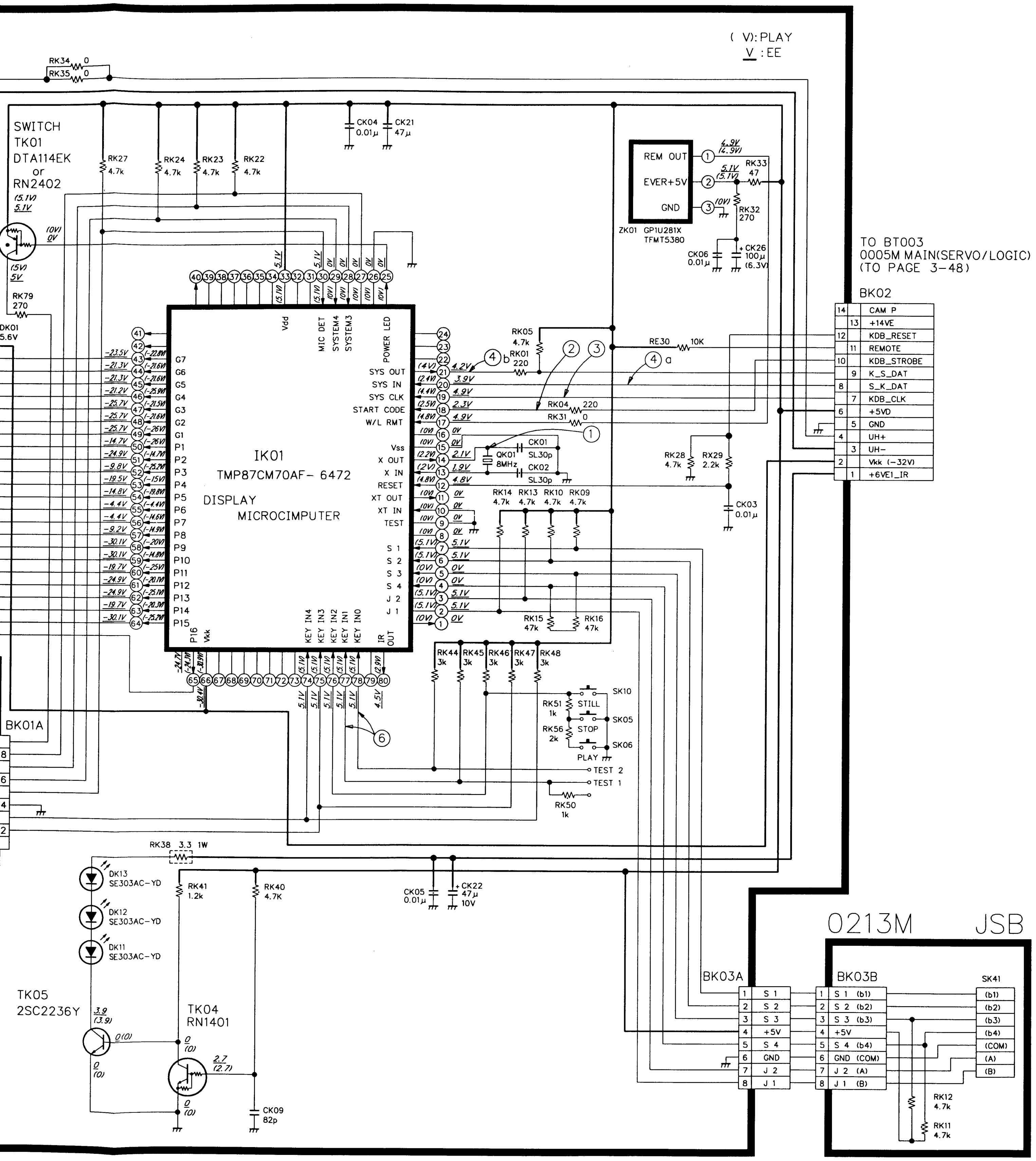

PIF KDB
PIF KDB
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
0005M MAIN(PIF)
BW001
UH+
UH-
U5 -32VE
U3 +33VE
PC
VM +20VE
VM +20VE
GND
GND
GND
GND
+14VE
+14VE
+14VE
+6VE
+6VE
TO BP002
0150M POWER
(PAGE 3-34)
BE401
U1 +12VS
GND
TO BE05
0212 FCB
(PAGE 3-40)
TW008
2SC2236Y
VOLTAGE REGULATOR
TW009
RN1405
SWITCH
TW006
BC858/B
SWITCH
TW003
2SC2236-Y
VOLTAGE REGULATOR
TW005
2SC223-Y
VOLTAGE REGULATOR
TW002
RN2403
SWITCH
TW001
BC848/C
SWITCH
70041116
70041074
70041672
POWER ON
+6VE
HARD ERROR
+14VE
VM +20VE
POWER GOOD
U5 -32VE
UH-
UH+
U2 +5VS
MONITOR
IIC BUS DATA EV
IIC BUS CLK EV
TO SERVO/LOGIC
(PAGE 3-46, 3-48)
U1 +12VS
U2 +5VS
V EE PB
V EE REC
T31.9STDM
C SYNC
VIDEO VPS
TO VIDEO
(PAGE 3-54)
FE4202
TUNER MODULATOR
0010M
+5VEP
AGC
U1 +12VS
MOD V IN
A EE PB MOD
U1 +12VS
U7 +5VE
32V
IIC CLK EV
IIC DA EV
L'H
IF
0020M IF4130
IF MODULE
IF
TRAP31.9/STD M /CH3 4
L'H
NORM L
AGC
VIDEO OUT
AUDIO
A IF OUT
U1 +12VS
STDI STDIM /MD ON OFF
TZ032
BC858/B
BUFFER
TZ057
BC858/B
BUFFER
TZ050
BC848/B
BUFFER
TZ051
BC858/C
BUFFER
TZ020
RN1402
FZ050 EFC S3F
FZ051 EFC S3F
TS030
2SC2859Y
SWITCH
TS039
BC848/B
SWITCH
LS030 DEV
TN430
2SC2859Y
TN439
BC848/B
LN430 DEV
TN641
BC848/B
AMP
TN640
BC848/B
BUFFER
TG031
BC858/B
SWITCH
TG030
RN1402
SWITCH
IY001
SDA5649
VPS DECODER


V: REC
(V): PLAY
FE4202
TUNER MODULATOR
0010M
+5VEP
AGC
U1 +12VS
MOD V IN
A EE PB MOD
U1 +12VS
U7 +5VE
32V
IIC CLK EV
IIC DA EV
L'H
IF
0020M IF4130
IF MODULE
IF
TRAP31.9/STD M /CH3 4
L'H
NORM L
AGC
VIDEO OUT
AUDIO
A IF OUT
U1 +12VS
STDI STDIM /MD ON OFF
TZ020 RN1402
TZ032 BC858/B BUFFER
TZ057 BC858/B BUFFER
TZ050 BC848/B BUFFER
TZ051 BC858/C BUFFER
FZ050 EFC S3F
FZ051 EFC S3F
TS030 2SC2859Y SWITCH
TS039 BC848/B SWITCH
LS030 DEV
TN430 2SC2859Y
TN439 BC848/B
LN430 DEV
TN640 BC848/B BUFFER
TN641 BC848/B AMP
TG031 BC858/B SWITCH
TG030 RN1402 SWITCH
IY001
SDA5649
VPS DECODER
TW009
RN1405 SWITCH
TW006 BC858/B SWITCH
TW005 2SC223-Y REGULATOR
DG030 LL4148
DG035 LL4148
DG034 LL4148
ERASECTL
C-BIAS
PB-REC-CTRL
SCART2
SHRP/RC
TO SERVO/LOGIC (PAGE 3-46,3-48)
BS031
GND
ERASECTL
A-LIN-REC
A-LIN-PB
NC
PB-REC-CTL
C BIAS
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL HEAD
BS001
A BIAS
A LIN PB
FOR TEST
BN301
IIC DA EV
IIC CLK EV
GND
MPX E/FE M
+8VE
SHRP/RC
FE CTL HIFI
TO BN301 0030M TERMINAL(MPX/AUDIO) (PAGE 3-60)
BS030
FULL ERASE HEAD
GND
FULL ERASE HEAD
BX101
A EE PB MOD
U4 +12VE
V EE REC
GND
V IF
GND
IIC CLK EV
IIC DA EV
GND
V EE PB
U7 +5VE
CSYNC
SCRT2
SCART ON
V EE PB MOD
TO BX101 0030M TERMINAL(I/O) (PAGE 3-44)
BN601
SIF
SIF-GND
TO BN002 0030M TERMINAL(MPX/AUDIO) (PAGE 3-58)
BX002
NC
ERASECTL
GND
A LIN REC
A LIN PB
GND
SP LP EP
NC
AUDIO MUTE
REC ON
U2 +5VS
+9VS1
GND
IIC CLK SW
IIC DA SW
AFF/PB A
AUDIO ENV
HI DE/R A
R LEV MTR
L LEV MTR
TO BX002 0030M TERMINAL(MPX/AUDIO) (PAGE 3-60)
SP LP EP
L LEV MTR
R LEV MTR
SCI/AFT
BUS CLK SW
BUS DATA SW
REC ON
HI DE/R A
AUDIO ENV
AFF/PB A
AUDIO MUTE
CSYNC
MPX E/FE M
+12.6VE
TO SERVO/LOGIC (PAGE 3-46,3-48)

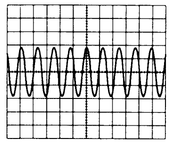
8-3. KDB CIRCUIT DIAGRAM



0210M KDB 1
LEVEL METER
GK01 7-MT-171GNK
SLP
DT
SAT
C+
VIDEO
MONI
VPS PDC
MIXAGE
TR
19μHEAD
dB -30 -10 0 +10
L
R
(V):PLAY
V :EE
SWITCH
TK01
DTA114EK
or
RN2402
RK34 0
RK35 0
RK37 10
CK08 SL100p
RK36 5.6k
CK07 0.022μ
RK27 4.7k
RK24 4.7k
RK23 4.7k
RK22 4.7k
CK04 0.01μ
CK21 47μ
REM OUT
EVER+5V
GND
ZK01 GP1U281X TFMT5380
RK33 47
RK32 270
CK06 0.01μ
CK26 100μ (6.3V)
RK79 270
DK01 5.6V
IK01
TMP87CM70AF- 6472
DISPLAY
MICROCIMPUTER
Vdd
MIC DET
SYSTEM4
SYSTEM3
POWER LED
SYS OUT
SYS IN
SYS CLK
START CODE
W/L RMT
Vss
X OUT
X IN
RESET
XT OUT
XT IN
TEST
S 1
S 2
S 3
S 4
J 2
J 1
KEY IN4
KEY IN3
KEY IN2
KEY IN1
KEY IN0
IR OUT
G7 G6 G5 G4 G3 G2 G1
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16
Vkk
RK05 4.7k
RK01 220
RK04 220
RK31 0
CK01 SL30p
CK02 SL30p
QK01 8MHz
RE30 10K
RK28 4.7k
RK29 2.2k
CK03 0.01μ
RK14 4.7k
RK13 4.7k
RK10 4.7k
RK09 4.7k
RK15 47k
RK16 47k
RK44 3k
RK45 3k
RK46 3k
RK47 3k
RK48 3k
TO BT003
0005M MAIN(SERVO/LOGIC)
(TO PAGE 3-48)
BK02
14 CAM P
13 +14VE
12 KDB_RESET
11 REMOTE
10 KDB_STROBE
9 K_S_DAT
8 S_K_DAT
7 KDB_CLK
6 +5VD
5 GND
4 UH+
3 UH-
2 Vkk (-32V)
1 +6VE1_IR
SK10
STILL
SK05
STOP
SK06
PLAY
TEST 2
TEST 1
RK51 1k
RK56 2k
RK50 1k
0212 FCB
SK01 CH UP
SK09 REC
SK03 POWER
SK02 CH DOWN
SK04 EJECT
RK53 1k
RK73 8.2k
RK52 1k
DK14 TLUG163
BK01B
BK01A
9 POWER LED
8 3DNR
7 SYSTEM3
6 SYSTEM4
5 MIC DET
4 GND
3 KEY 4
2 KEY 3
1 NC
TO BE401
0005M
MAIN(PIF)
(TO PAGE 3-37)
BE05
+12VS
GND
BE04
MIC IN
GND
NC
NC
TO BN004
0030M
TERMINAL (AUDIO)
(TO PAGE 3-60)
RM26 15k
RM28 15k
RM31 33k
RM32 100k
CM31 150p
CM28 22μ16V
RM30 10k
CM27 1000p
ICM02
NUM2068M
Vcc
Vss
SK32
DNR
ON OFF
BN006
WK03
DM01 1SS226
RM29 100k
RM24 10k
CM30 150p
CM29 F0.33μ
RK82 75
RK84 1k
RK83 1k
CK11 1000p
CK12 1000p
RK105 0
RK106 0
RK107 0
BE01
F-VIDEO IN
VIDEO GND
F-AUDIO-L
AUDIO GND
F-AUDIO-R
NC
TO BX003
0030M
TERMINAL (AUDIO)
(TO PAGE 3-60)
RK38 3.3 1W
DK13 SE303AC-YD
DK12 SE303AC-YD
DK11 SE303AC-YD
RK41 1.2k
RK40 4.7K
CK05 0.01μ
CK22 47μ 10V
TK05
2SC2236Y
TK04
RN1401
CK09 82p
BK03A
0213M JSB
BK03B
SK41
S 1 (b1)
S 2 (b2)
S 3 (b3)
+5V
S 4 (b4)
GND (COM)
J 2 (A)
J 1 (B)
RK12 4.7k
RK11 4.7k

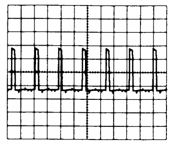

(V): PLAY
V : EE
SWITCH
TK01
DTA114EK
or
RN2402
RK34 0
RK35 0
RK27 4.7k
RK24 4.7k
RK23 4.7k
RK22 4.7k
CK04 0.01µ
CK21 47µ
REM OUT
EVER+5V
GND
ZK01 GP1U281X TFMT5380
RK33 47
RK32 270
CK06 0.01µ
CK26 100µ (6.3V)
TO BT003
0005M MAIN(SERVO/LOGIC)
(TO PAGE 3-48)
BK02
CAM P
+14VE
KDB_RESET
REMOTE
KDB_STROBE
K_S_DAT
S_K_DAT
KDB_CLK
+5VD
GND
UH+
UH-
Vkk (-32V)
+6VE1_IR
IK01
TMP87CM70AF- 6472
DISPLAY
MICROCIMPUTER
Vdd
MIC DET
SYSTEM4
SYSTEM3
POWER LED
SYS OUT
SYS IN
SYS CLK
START CODE
W/L RMT
Vss
X OUT
X IN
RESET
XT OUT
XT IN
TEST
S 1
S 2
S 3
S 4
J 2
J 1
KEY IN4
KEY IN3
KEY IN2
KEY IN1
KEY IN0
IR OUT
P16
Vkk
G7 G6 G5 G4 G3 G2 G1
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15
RK05 4.7k
RK01 220
RE30 10K
RK04 220
RK31 0
QK01 8MHz
CK01 SL30p
CK02 SL30p
RK28 4.7k
RX29 2.2k
CK03 0.01µ
RK14 4.7k
RK13 4.7k
RK10 4.7k
RK09 4.7k
RK15 47k
RK16 47k
RK44 3k
RK45 3k
RK46 3k
RK47 3k
RK48 3k
SK10
STILL
SK05
STOP
SK06
PLAY
TEST 2
TEST 1
RK51 1k
RK56 2k
RK50 1k
RK79 270
DK01 5.6V
BK01A
RK38 3.3 1W
DK13 SE303AC-YD
DK12 SE303AC-YD
DK11 SE303AC-YD
RK41 1.2k
RK40 4.7K
CK05 0.01µ
CK22 47µ 10V
TK05 2SC2236Y
TK04 RN1401
CK09 82p
0213M JSB
BK03A
S 1
S 2
S 3
+5V
S 4
GND
J 2
J 1
BK03B
S 1 (b1)
S 2 (b2)
S 3 (b3)
+5V
S 4 (b4)
GND (COM)
J 2 (A)
J 1 (B)
SK41
(b1) (b2) (b3) (b4) (COM) (A) (B)
RK12 4.7k
RK11 4.7k
① ② ③ ④a ④b ⑤ ⑥

① IK01,Pin ⑭ C-8



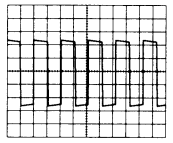
X-OUT
V:1V/div
H:0.1µs/div

⑤ IK01,Pin ㊸ C-4



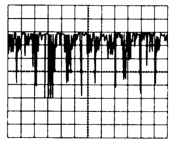
V:10V/div
H:500µs/div

② IK01,Pin ⑱ C-8



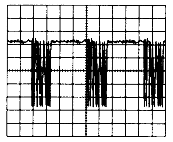
STROBE
V:1V/div
H:10ms/div

⑥ IK01,Pin ⑰,⑱ E-7



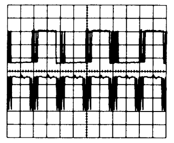
V:200mV/div
H:5ms/div

③ IK01,Pin ⑲ C-8



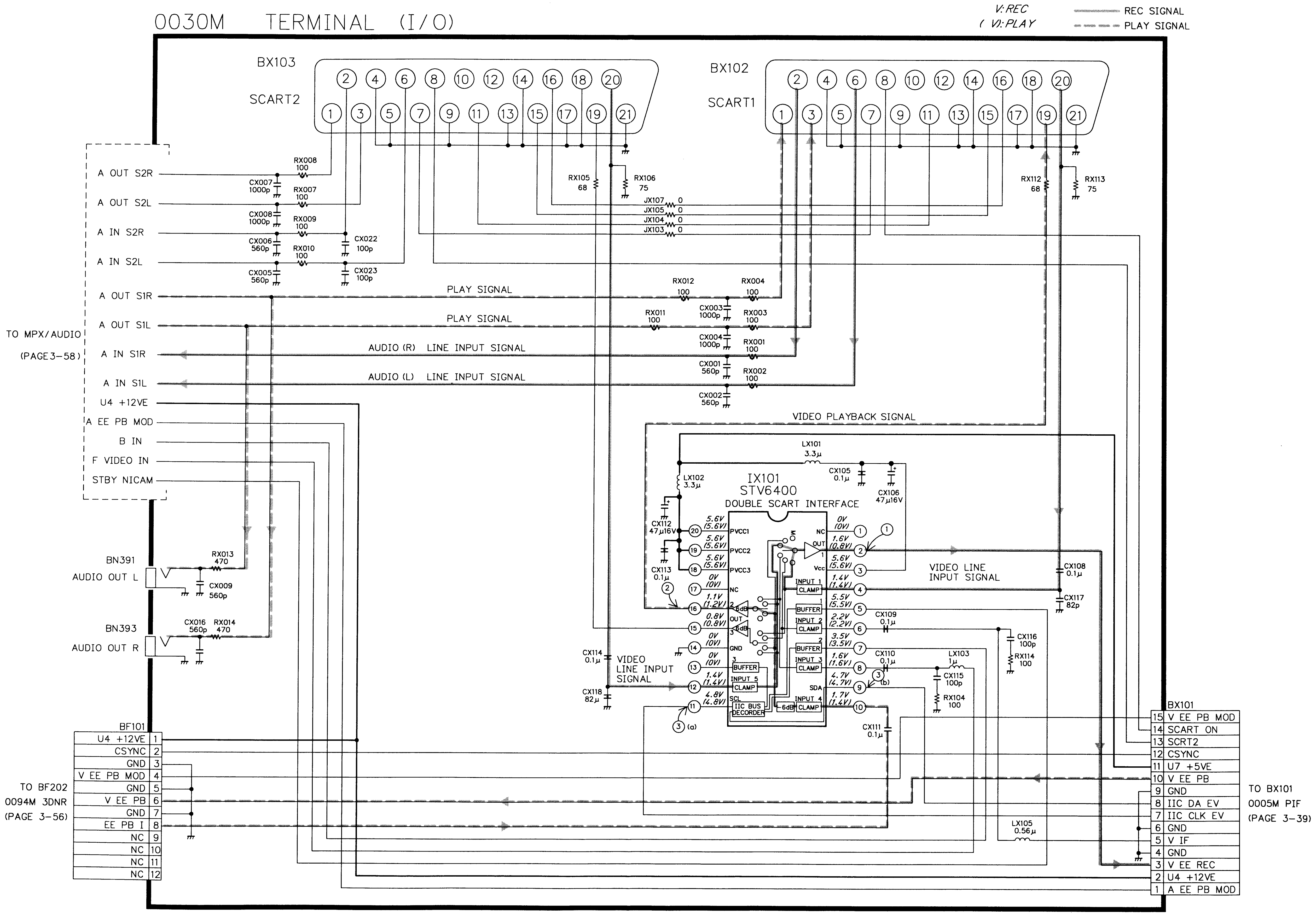
CLOCK
V:1V/div
H:5ms/div

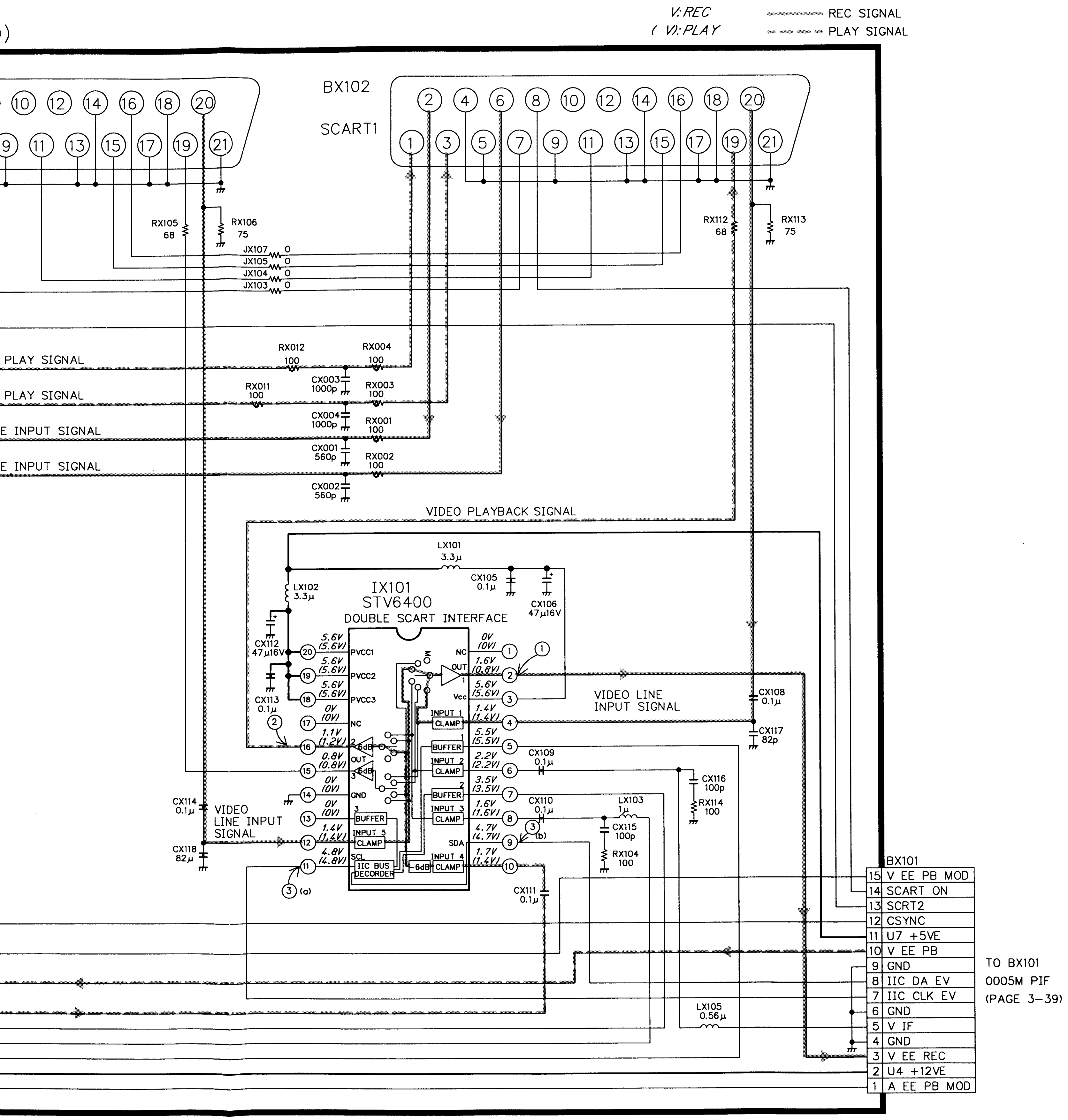
④ IK01
(a) Pin ⑳ (DATA IN) C-8
(b) Pin ㉑ (DATA OUT) C-7

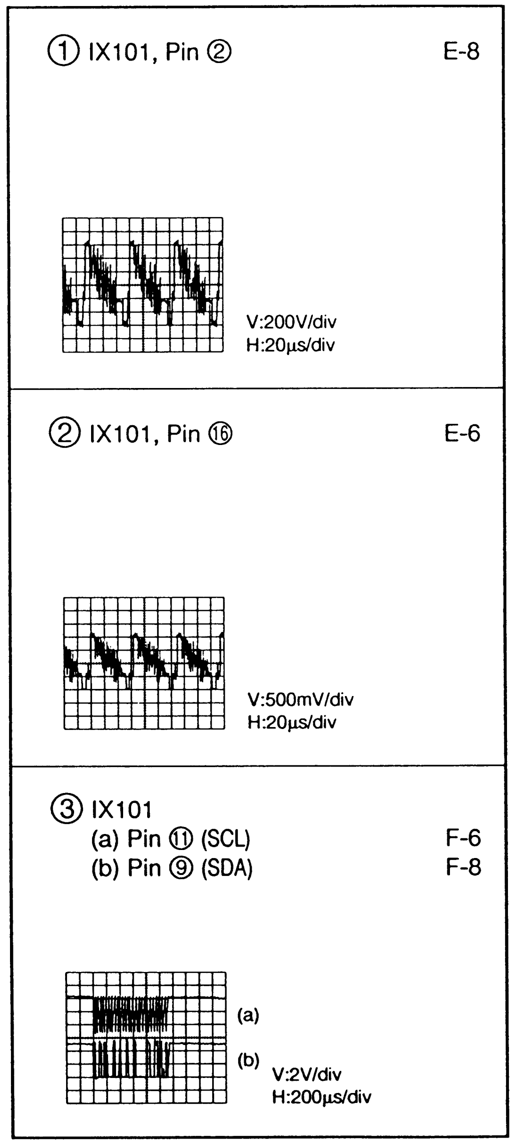


V:2V/div
H:10ms/div

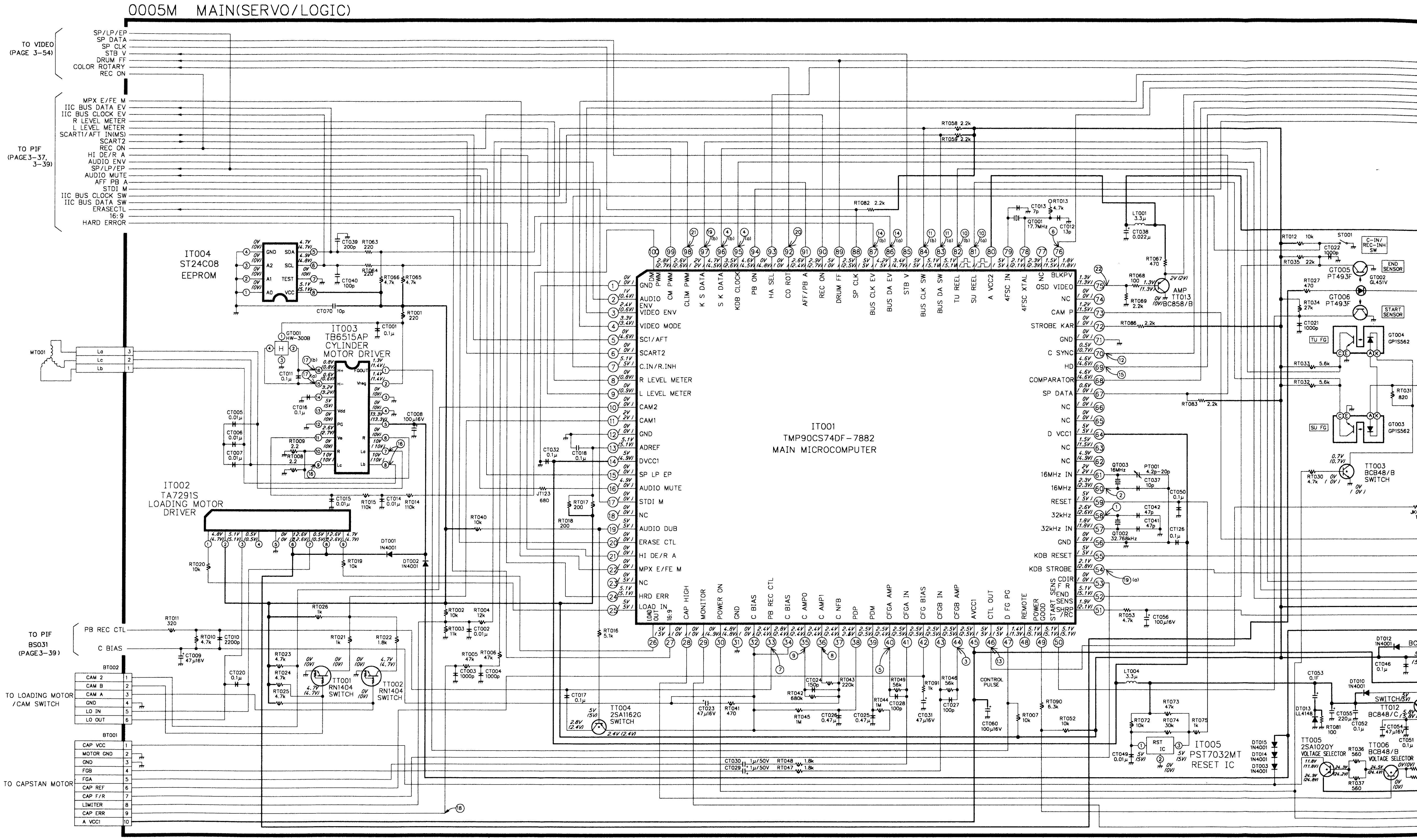
8-4. TERMINAL (I / O) CIRCUIT DIAGRAM


0030M TERMINAL (I/O)
V:REC
(V):PLAY
REC SIGNAL
PLAY SIGNAL
BX103
SCART2
BX102
SCART1
A OUT S2R
A OUT S2L
A IN S2R
A IN S2L
A OUT S1R
A OUT S1L
A IN S1R
A IN S1L
U4 +12VE
A EE PB MOD
B IN
F VIDEO IN
STBY NICAM
TO MPX/AUDIO
(PAGE3-58)
PLAY SIGNAL
PLAY SIGNAL
AUDIO (R) LINE INPUT SIGNAL
AUDIO (L) LINE INPUT SIGNAL
VIDEO PLAYBACK SIGNAL
VIDEO LINE INPUT SIGNAL
VIDEO LINE INPUT SIGNAL
RX008 100
CX007 1000p
RX007 100
CX008 1000p
RX009 100
CX006 560p
RX010 100
CX005 560p
CX022 100p
CX023 100p
RX105 68
RX106 75
JX107 0
JX105 0
JX104 0
JX103 0
RX112 68
RX113 75
RX012 100
RX004 100
RX011 100
CX003 1000p
RX003 100
CX004 1000p
RX001 100
CX001 560p
RX002 100
CX002 560p
LX101 3.3μ
LX102 3.3μ
CX105 0.1μ
CX106 47μ16V
CX112 47μ16V
CX113 0.1μ
IX101
STV6400
DOUBLE SCART INTERFACE
PVCC1
PVCC2
PVCC3
NC
GND
OUT
INPUT 1 CLAMP
BUFFER
INPUT 2 CLAMP
BUFFER
INPUT 3 CLAMP
INPUT 5 CLAMP
INPUT 4 CLAMP
BUFFER
IIC BUS DECORDER
SCL
SDA
Vcc
6dB
5.6V (5.6V)
5.6V (5.6V)
5.6V (5.6V)
0V (0V)
1.1V (1.2V)
0.8V (0.8V)
0V (0V)
0V (0V)
1.4V (1.4V)
4.8V (4.8V)
0V (0V)
1.6V (0.8V)
5.6V (5.6V)
1.4V (1.4V)
5.5V (5.5V)
2.2V (2.2V)
3.5V (3.5V)
1.6V (1.6V)
4.7V (4.7V)
1.7V (1.4V)
CX108 0.1μ
CX117 82p
CX109 0.1μ
CX116 100p
RX114 100
CX110 0.1μ
LX103 1μ
CX115 100p
RX104 100
CX111 0.1μ
CX114 0.1μ
CX118 82μ
3 (a)
3 (b)
LX105 0.56μ
BN391
AUDIO OUT L
RX013 470
CX009 560p
BN393
AUDIO OUT R
CX016 560p
RX014 470
BF101
1 U4 +12VE
2 CSYNC
3 GND
4 V EE PB MOD
5 GND
6 V EE PB
7 GND
8 EE PB I
9 NC
10 NC
11 NC
12 NC
TO BF202
0094M 3DNR
(PAGE 3-56)
BX101
15 V EE PB MOD
14 SCART ON
13 SCRT2
12 CSYNC
11 U7 +5VE
10 V EE PB
9 GND
8 IIC DA EV
7 IIC CLK EV
6 GND
5 V IF
4 GND
3 V EE REC
2 U4 +12VE
1 A EE PB MOD
TO BX101
0005M PIF
(PAGE 3-39)

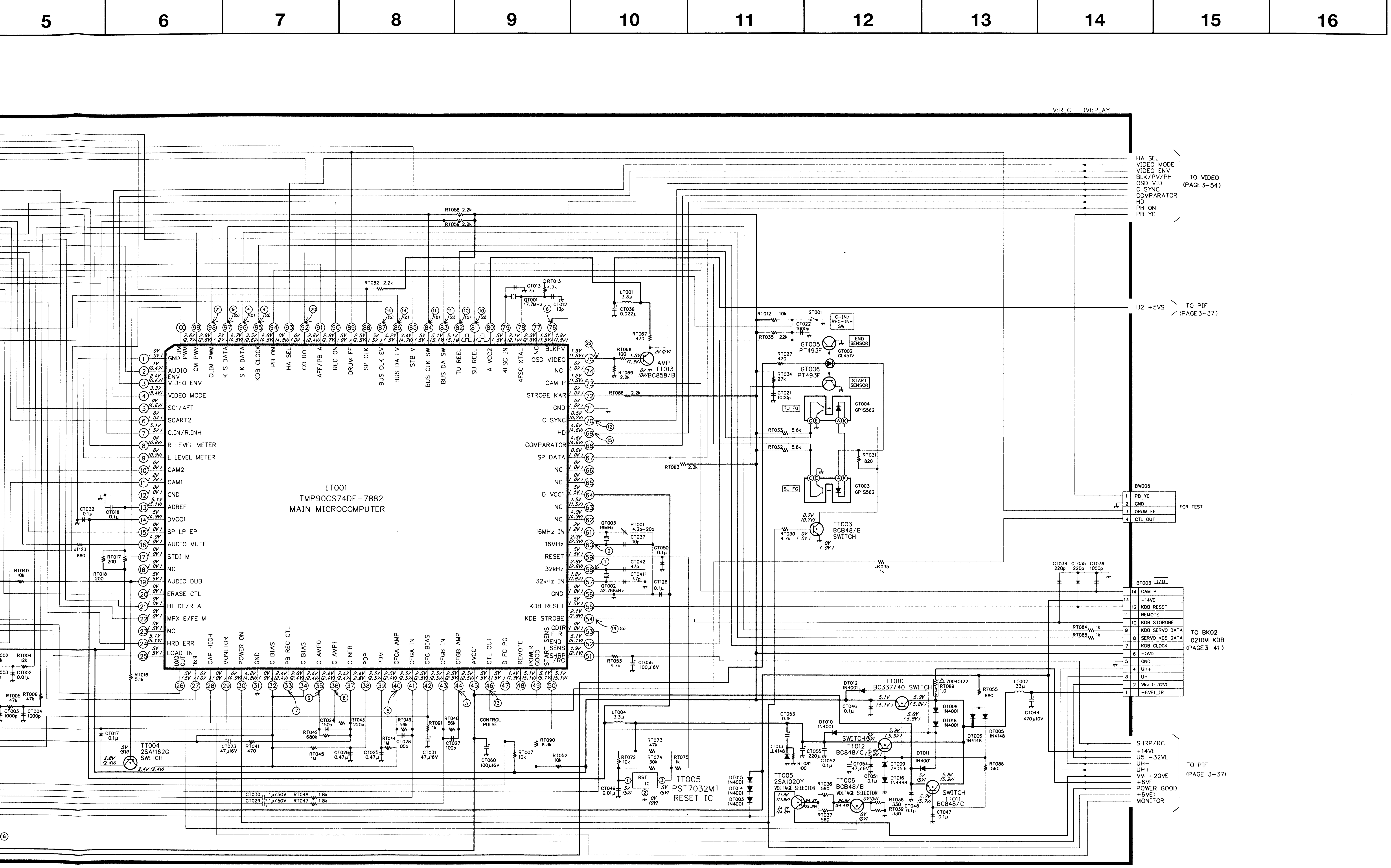

V:REC
(V):PLAY
REC SIGNAL
PLAY SIGNAL
BX102
SCART1
RX105 68
RX106 75
JX107 0
JX105 0
JX104 0
JX103 0
RX112 68
RX113 75
PLAY SIGNAL
PLAY SIGNAL
E INPUT SIGNAL
E INPUT SIGNAL
RX012 100
RX004 100
RX011 100
CX003 1000p
RX003 100
CX004 1000p
RX001 100
CX001 560p
RX002 100
CX002 560p
VIDEO PLAYBACK SIGNAL
LX101 3.3μ
CX105 0.1μ
CX106 47μ16V
LX102 3.3μ
IX101
STV6400
DOUBLE SCART INTERFACE
CX112 47μ16V
CX113 0.1μ
PVCC1
PVCC2
PVCC3
NC
OUT
GND
BUFFER
INPUT 5 CLAMP
SCL
IIC BUS DECORDER
6dB
INPUT 1 CLAMP
BUFFER
INPUT 2 CLAMP
BUFFER
INPUT 3 CLAMP
SDA
INPUT 4 CLAMP
Vcc
5.6V (5.6V)
5.6V (5.6V)
5.6V (5.6V)
0V (0V)
1.1V (1.2V)
0.8V (0.8V)
0V (0V)
0V (0V)
1.4V (1.4V)
4.8V (4.8V)
0V (0V)
1.6V (0.8V)
5.6V (5.6V)
1.4V (1.4V)
5.5V (5.5V)
2.2V (2.2V)
3.5V (3.5V)
1.6V (1.6V)
4.7V (4.7V)
1.7V (1.4V)
VIDEO LINE INPUT SIGNAL
CX108 0.1μ
CX117 82p
CX109 0.1μ
CX116 100p
RX114 100
CX110 0.1μ
LX103 1μ
CX115 100p
RX104 100
CX111 0.1μ
CX114 0.1μ
VIDEO LINE INPUT SIGNAL
CX118 82μ
LX105 0.56μ
BX101
15 V EE PB MOD
14 SCART ON
13 SCRT2
12 CSYNC
11 U7 +5VE
10 V EE PB
9 GND
8 IIC DA EV
7 IIC CLK EV
6 GND
5 V IF
4 GND
3 V EE REC
2 U4 +12VE
1 A EE PB MOD
TO BX101
0005M PIF
(PAGE 3-39)


① IX101, Pin ②
E-8
V:200V/div
H:20μs/div
② IX101, Pin ⑯
E-6
V:500mV/div
H:20μs/div
③ IX101
(a) Pin ⑪ (SCL)
(b) Pin ⑨ (SDA)
F-6
F-8
(a)
(b)
V:2V/div
H:200μs/div

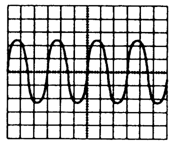
8-5. SERVO / LOGIC CIRCUIT DIAGRAM



0005M MAIN(SERVO/LOGIC)
TO VIDEO (PAGE 3-54)
SP/LP/EP
SP DATA
SP CLK
STB V
DRUM FF
COLOR ROTARY
REC ON
TO PIF (PAGE3-37, 3-39)
MPX E/FE M
IIC BUS DATA EV
IIC BUS CLOCK EV
R LEVEL METER
L LEVEL METER
SCART1/AFT IN(MS)
SCART2
REC ON
HI DE/R A
AUDIO ENV
SP/LP/EP
AUDIO MUTE
AFF PB A
STDI M
IIC BUS CLOCK SW
IIC BUS DATA SW
ERASECTL
16:9
HARD ERROR
IT004 ST24C08 EEPROM
IT003 TB6515AP CYLINDER MOTOR DRIVER
IT002 TA7291S LOADING MOTOR DRIVER
MT001
IT001 TMP90CS74DF-7882 MAIN MICROCOMPUTER
TT001 RN1404 SWITCH
TT002 RN1404 SWITCH
TT004 2SA1162G SWITCH
TT013 BC858/B AMP
IT005 PST7032MT RESET IC
TT003 BC848/B SWITCH
TT005 2SA1020Y VOLTAGE SELECTOR
TT006 BC848/B VOLTAGE SELECTOR
TT012 BC848/C SWITCH
GT005 PT493F END SENSOR
GT006 PT493F START SENSOR
GT002 GL451V
GT004 GP1S562
GT003 GP1S562
ST001 C-IN/REC-INH SW
TU FG
SU FG
TO PIF BS031 (PAGE3-39)
PB REC CTL
C BIAS
BT002
TO LOADING MOTOR /CAM SWITCH
CAM 2
CAM B
CAM A
GND
LO IN
LO OUT
BT001
TO CAPSTAN MOTOR
CAP VCC
MOTOR GND
GND
FGB
FGA
CAP REF
CAP F/R
LIMITER
CAP ERR
A VCC1
CONTROL PULSE
QT001 17.7MHz
QT003 16MHz
QT002 32.768kHz

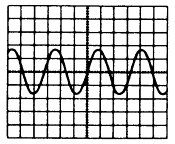

5
6
7
8
9
10
11
12
13
14
15
16
V:REC (V):PLAY
IT001
TMP90CS74DF-7882
MAIN MICROCOMPUTER
GND
AUDIO ENV
VIDEO ENV
VIDEO MODE
SC1/AFT
SCART2
C.IN/R.INH
R LEVEL METER
L LEVEL METER
CAM2
CAM1
GND
ADREF
DVCC1
SP LP EP
AUDIO MUTE
STDI M
NC
AUDIO DUB
ERASE CTL
HI DE/R A
MPX E/FE M
NC
HRD ERR
LOAD IN
DM PWM
CM PWM
CLIM PWM
K S DATA
S K DATA
KDB CLOCK
PB ON
HA SEL
CO ROT
AFF/PB A
REC ON
DRUM FF
SP CLK
BUS CLK EV
BUS DA EV
STB V
BUS CLK SW
BUS DA SW
TU REEL
SU REEL
A VCC2
4FSC IN
4FSC XTAL
NC
BLKPV
OSD VIDEO
NC
CAM P
STROBE KAR
GND
C SYNC
HD
COMPARATOR
SP DATA
NC
NC
D VCC1
NC
NC
16MHz IN
16MHz
RESET
32kHz
32kHz IN
GND
KDB RESET
KDB STROBE
CDIR
F R
END SENS
START SENS
SHRP /RC
LOAD OUT 16:9
CAP HIGH
MONITOR
POWER ON
GND
C BIAS
PB REC CTL
C BIAS
C AMP0
C AMP1
C NFB
PDP
PDM
CFGA AMP
CFGA IN
CFG BIAS
CFGB IN
CFGB AMP
AVCC1
CTL OUT
D FG PG
REMOTE
POWER GOOD
RT058 2.2k
RT059 2.2k
RT082 2.2k
CT013 7p
RT013 4.7k
QT001 17.7MHz
CT012 13p
LT001 3.3µ
CT038 0.022µ
RT067 470
RT068 100
RT069 2.2k
AMP TT013 BC858/B
RT086 2.2k
RT083 2.2k
QT003 16MHz
PT001 4.2p-20p
CT037 10p
CT050 0.1µ
CT042 47p
CT041 47p
QT002 32.768kHz
CT126 0.1µ
RT053 4.7k
CT056 100µ16V
CT032 0.1µ
CT018 0.1µ
JT123 680
RT017 200
RT018 200
RT040 10k
RT016 5.1k
RT004 12k
CT002 0.01µ
RT005 47k
RT006 47k
CT003 1000p
CT004 1000p
CT017 0.1µ
TT004 2SA1162G SWITCH
CT023 47µ16V
RT041 470
CT024 150p
RT042 680k
RT043 220k
RT045 1M
CT026 0.47µ
RT044 1M
CT025 0.47µ
RT049 56k
CT028 100p
RT091 1k
CT031 47µ16V
RT046 56k
CT027 100p
CONTROL PULSE
CT060 100µ16V
RT007 10k
RT090 6.3k
RT052 10k
CT030 1µ/50V
CT029 1µ/50V
RT048 1.8k
RT047 1.8k
LT004 3.3µ
RT073 47k
RT072 10k
RT074 30k
RT075 1k
CT049 0.01µ
RST IC
IT005 PST7032MT RESET IC
DT015 1N4001
DT014 1N4001
DT003 1N4001
RT012 10k
ST001
C-IN/ REC-INH SW
CT022 1000p
RT035 22k
GT005 PT493F
END SENSOR
RT027 470
GT002 GL451V
GT006 PT493F
RT034 27k
START SENSOR
CT021 1000p
TU FG
GT004 GP1S562
RT033 5.6k
RT032 5.6k
RT031 820
SU FG
GT003 GP1S562
TT003 BCB48/B SWITCH
RT030 4.7k
JK035 1k
TO VIDEO (PAGE3-54)
HA SEL
VIDEO MODE
VIDEO ENV
BLK/PV/PH
OSD VID
C SYNC
COMPARATOR
HD
PB ON
PB YC
U2 +5VS
TO PIF (PAGE3-37)
BW005
PB YC
GND
DRUM FF
CTL OUT
FOR TEST
CT034 220p
CT035 220p
CT036 1000p
BT003
CAM P
+14VE
KDB RESET
REMOTE
KDB STOROBE
KDB SERVO DATA
SERVO KDB DATA
KDB CLOCK
+5VD
GND
UH+
UH-
Vkk (-32V)
+6VE1_IR
RT084 1k
RT085 1k
TO BK02 0210M KDB (PAGE3-41)
DT012 1N4001
TT010 BC337/40 SWITCH
70040122 RT089 1.0
RT055 680
LT002 33µ
CT044 470µ10V
CT046 0.1µ
DT008 1N4001
DT018 1N4001
CT053 0.1F
DT010 1N4001
SWITCH TT012 BC848/C
DT013 LL4148
CT055 220µ
RT081 100
CT052 0.1µ
CT054 47µ16V
DT009 ZPD5.6
DT011 1N4001
DT006 1N4148
DT005 1N4148
RT088 560
TT005 2SA1020Y VOLTAGE SELECTOR
RT036 560
TT006 BCB48/B VOLTAGE SELECTOR
CT051 0.1µ
DT016 1N4448
RT037 560
RT038 330
RT039 330
CT048 0.1µ
SWITCH TT011 BC848/C
CT047 0.1µ
SHRP/RC
+14VE
U5 -32VE
UH-
UH+
VM +20VE
+6VE
POWER GOOD
+6VE1
MONITOR
TO PIF (PAGE 3-37)

① IT001, Pin (58) E-10



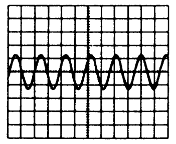
V:2V/div
H:10µs/div

② IT001,Pin (60) E-10



V:2V/div
H:0.02µs/div

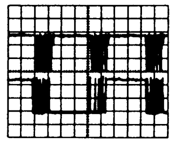
③ IT001, Pin ㊹ F-9



CPGB.AMP
SP PLAY

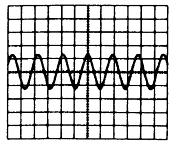
V:500mV/div
H:500µs/div

④ IT001
(a) Pin (95) (KDB CLOCK) C-7
(b) Pin (96) (S K DATA) C-7



V:2V/div
H:5ms/div

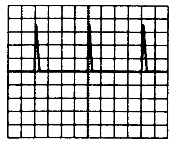
⑤ IT001, Pin ㊵ F-8



CFGA,AMP
SP PLAY

V:500mV/div
H:500µs/div

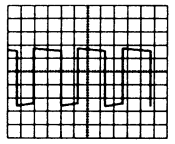
⑥ IT001, Pin (76) C-9



PV/PH/BLK
STILL

V:1V/div
H:10ms/div

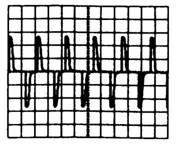
⑦ IT001, Pin ㉝ F-7



R/P CTL
REC

V:1V/div
H:10ms/div

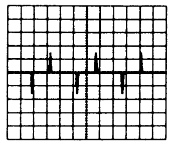
⑧ IT001, Pin ㊱ F-8



C.AMP1
FF (SP)

V:1V/div
H:500µs/div

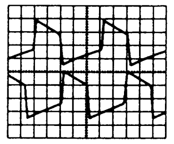
⑨ IT001, Pin ㉟ F-7



C.AMP0
PLAY (SP)

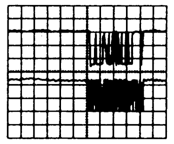
V:1V/div
H:10ms/div

⑩ IT001
(a) Pin (81) SP PLAY C-9
(b) Pin (82) SP PLAY C-9



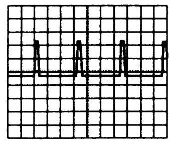
V:2V/div
H:100ms/div

⑪ IT001
(a) Pin (83) C-8
(b) Pin (84) C-8



V:2V/div
H:200µV/div

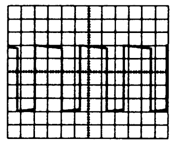
⑫ IT001, Pin (70) D-10



C SYNC

V:2V/div
H:20µs/div

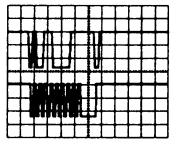
⑬ IT001, Pin ㊻ F-9



CTL OUT

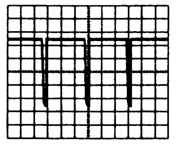
V:1V/div
H:10ms/div

⑭ IT001
(a) Pin (86) SP PLAY C-8
(b) Pin (87) C-8



V:2V/div
H:20µs/div

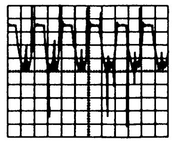
⑮ IT001, Pin (69) D-10



HD

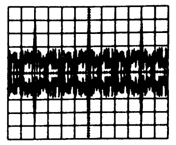
V:1V/div
H:20µs/div

⑯ IT003
Pin ⑦, ⑧ D-4
Pin ⑨ E-3



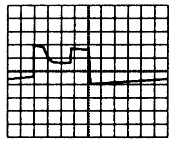
V:2V/div
H:5ms/div

⑰ IT003
(a) Pin ⑮ D-3
(b) Pin ⑯ D-3



V:100mV/div
H:10ms/div

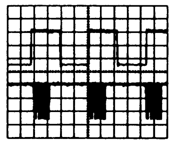
⑱ BT001, Pin ⑨ G-5



CAP ERR
SP SLOW

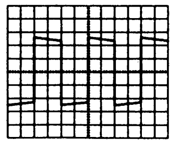
V:2V/div
H:20ms/div

⑲ IT001
(a) Pin (54) (KDB STROBE) E-10
(b) Pin (97) (K→S DATA) C-7



V:2mV/div
H:5ms/div

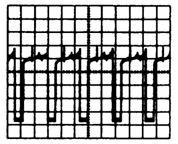
⑳ IT001, Pin (92) C-7



COLOR
ROTARY (SP)

V:1V/div
H:10ms/div

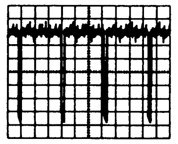
㉑ IT001, Pin (98) C-6



CAP

V:1V/div
H:10µs/div

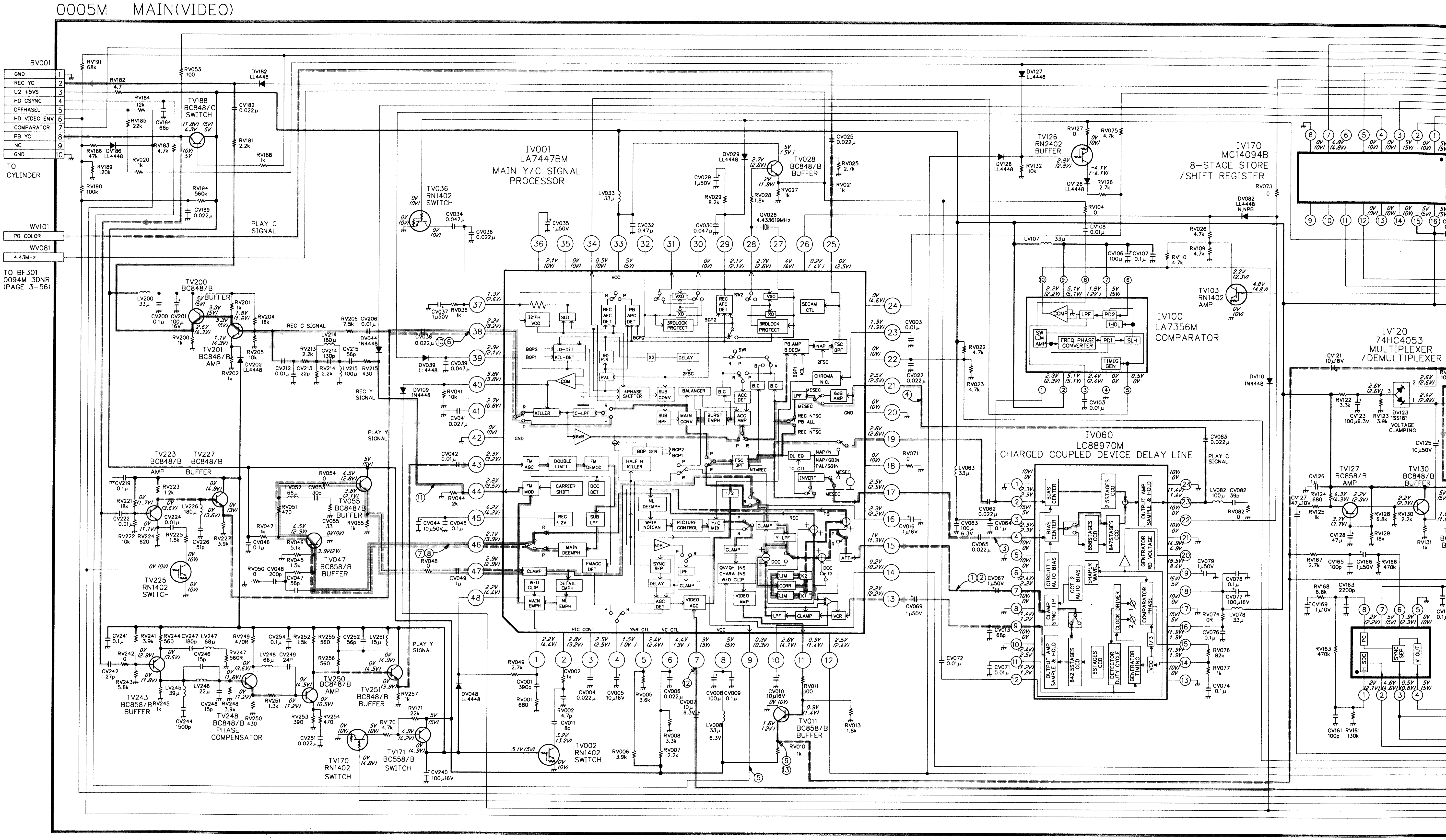
㉒ IT001, Pin (75) C-10



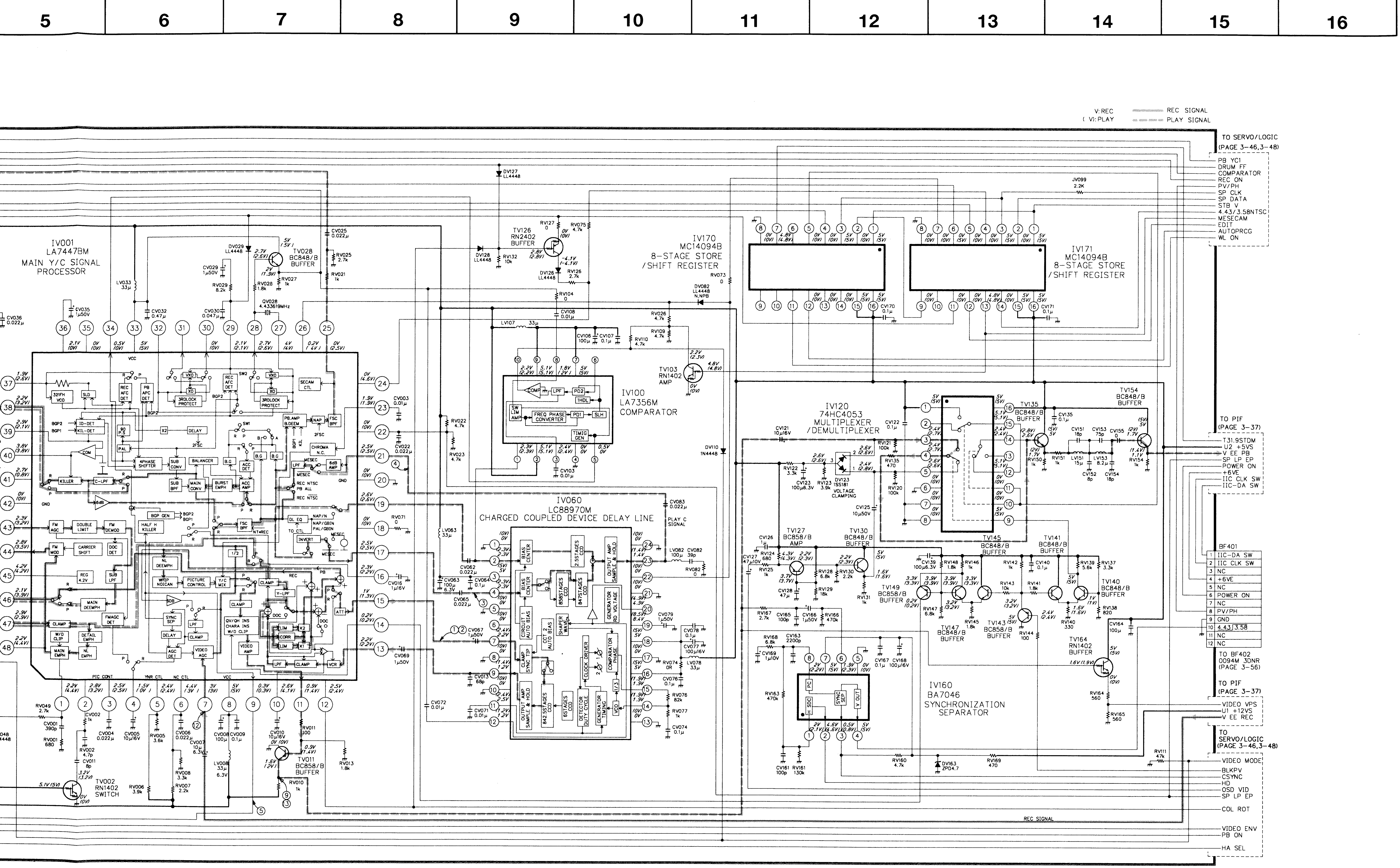
OSD
VIDEO

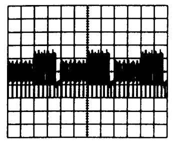
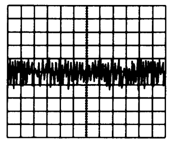
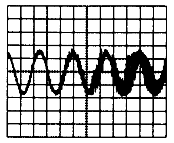
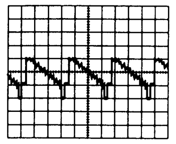
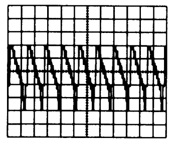
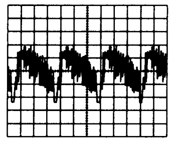
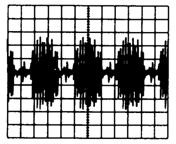
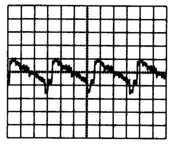
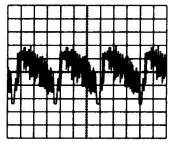
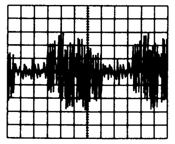
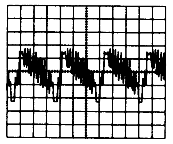
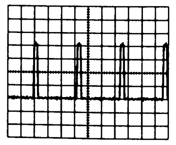
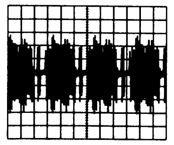
V:1V/div
H:20µs/div

8-6. VIDEO CIRCUIT DIAGRAM

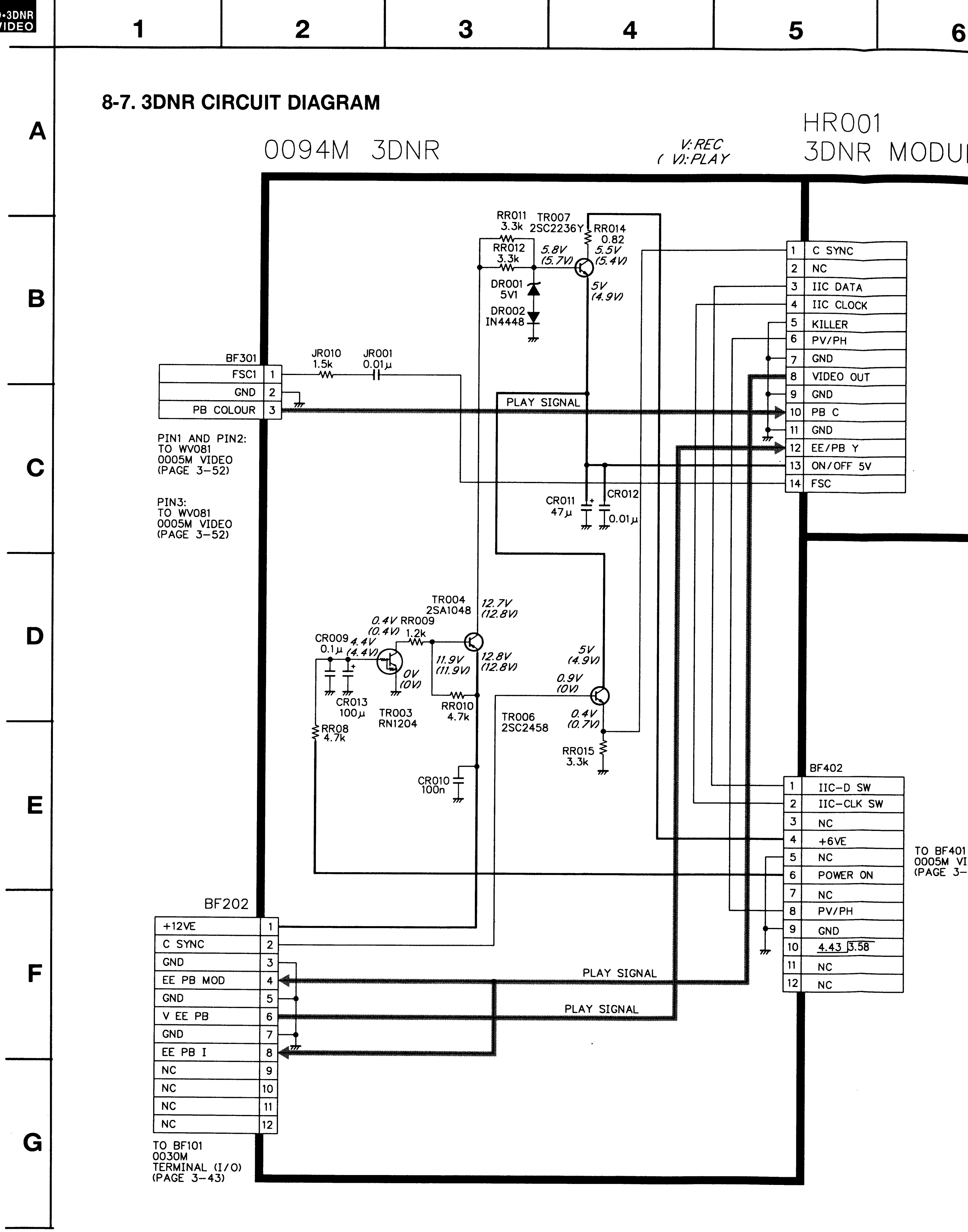


0005M MAIN(VIDEO)
BV001
GND 1
REC YC 2
U2 +5VS 3
HD CSYNC 4
DFFHASEL 5
HD VIDEO ENV 6
COMPARATOR 7
PB YC 8
NC 9
GND 10
TO CYLINDER
WV101
PB COLOR
WV081
4.43MHz
TO BF301 0094M 3DNR (PAGE 3-56)
TV188 BC848/C SWITCH
TV200 BC848/B BUFFER
TV201 BC848/B AMP
TV223 BC848/B AMP
TV227 BC848/B BUFFER
TV225 RN1402 SWITCH
TV055 BC848/B BUFFER
TV047 BC858/B BUFFER
TV243 BC858/B BUFFER
TV248 BC848/B PHASE COMPENSATOR
TV250 BC848/B AMP
TV251 BC848/B BUFFER
TV170 RN1402 SWITCH
TV171 BC558/B SWITCH
TV036 RN1402 SWITCH
TV028 BC848/B BUFFER
TV002 RN1402 SWITCH
TV011 BC858/B BUFFER
PLAY C SIGNAL
REC C SIGNAL
REC Y SIGNAL
PLAY Y SIGNAL
IV001 LA7447BM MAIN Y/C SIGNAL PROCESSOR
QV028 4.433619MHz
TV126 RN2402 BUFFER
IV170 MC14094B 8-STAGE STORE /SHIFT REGISTER
TV103 RN1402 AMP
IV100 LA7356M COMPARATOR
IV120 74HC4053 MULTIPLEXER /DEMULTIPLEXER
IV060 LC88970M CHARGED COUPLED DEVICE DELAY LINE
TV127 BC858/B AMP
TV130 BC848/B BUFFER
VOLTAGE CLAMPING
PLAY C SIGNAL

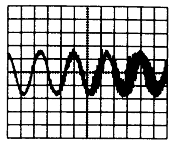

5
6
7
8
9
10
11
12
13
14
15
16
V: REC
(V): PLAY
REC SIGNAL
PLAY SIGNAL
IV001
LA7447BM
MAIN Y/C SIGNAL
PROCESSOR
TV028
BC848/B
BUFFER
TV126
RN2402
BUFFER
IV170
MC14094B
8-STAGE STORE
/SHIFT REGISTER
IV171
MC14094B
8-STAGE STORE
/SHIFT REGISTER
IV100
LA7356M
COMPARATOR
TV103
RN1402
AMP
IV060
LC88970M
CHARGED COUPLED DEVICE DELAY LINE
PLAY C SIGNAL
IV120
74HC4053
MULTIPLEXER
/DEMULTIPLEXER
DV123
1SS181
VOLTAGE CLAMPING
TV127
BC858/B
AMP
TV130
BC848/B
BUFFER
TV145
BC848/B
BUFFER
TV141
BC848/B
BUFFER
TV140
BC848/B
BUFFER
TV149
BC858/B
BUFFER
TV147
BC848/B
BUFFER
TV143
BC858/B
BUFFER
TV135
BC848/B
BUFFER
TV154
BC848/B
BUFFER
TV164
RN1402
BUFFER
IV160
BA7046
SYNCHRONIZATION
SEPARATOR
TV002
RN1402
SWITCH
TV011
BC858/B
BUFFER
TO SERVO/LOGIC
(PAGE 3-46,3-48)
PB YC1
DRUM FF
COMPARATOR
REC ON
PV/PH
SP CLK
SP DATA
STB V
4.43/3.58NTSC
MESECAM
EDIT
AUTOPRCG
WL ON
TO PIF
(PAGE 3-37)
T31.9STDM
U2 +5VS
V EE PB
SP LP EP
POWER ON
+6VE
IIC CLK SW
IIC-DA SW
BF401
1 IIC-DA SW
2 IIC CLK SW
3 NC
4 +6VE
5 NC
6 POWER ON
7 NC
8 PV/PH
9 GND
10 4.43/3.58
11 NC
12 NC
TO BF402
0094M 3DNR
(PAGE 3-56)
TO PIF
(PAGE 3-37)
VIDEO VPS
U1 +12VS
V EE REC
TO
SERVO/LOGIC
(PAGE 3-46,3-48)
VIDEO MODE
BLKPV
CSYNC
HD
OSD VID
SP LP EP
COL ROT
VIDEO ENV
PB ON
HA SEL
REC SIGNAL
JV099 2.2K
DV127 LL4448
DV029 LL4448
DV128 LL4448
DV126 LL4448
DV082 LL4448 N,NPB
DV110 1N4448
DV163 ZPD4.7
QV028 4.433619MHz
LV033 33μ
LV107 33μ
LV063 33μ
LV082 100μ
LV078 33μ
LV008 33μ 6.3V
321FH VCO
SLD
ID-DET
KIL-DET
COM
KILLER
C-LPF
REC AFC DET
PB APC DET
90 P.S
PAL
4PHASE SHIFTER
SUB CONV
SUB BPF
MAIN CONV
BURST EMPH
ACC AMP
ACC DET
BALANCER
VXO
XO
3ROLOCK PROTECT
SECAM CTL
PB.AMP B.DEEM
NAP
FSC BPF
CHROMA N.C.
6dB AMP
DELAY
2FSC
BGP GEN
HALF H KILLER
FSC BPF
DL EQ
INVERT
FM AGC
FM MOD
DOUBLE LIMIT
FM DEMOD
CARRIER SHIFT
DOC DET
REG 4.2V
SUB LPF
MAIN DEEMPH
FMAGC DET
CLAMP
W/D CLIP
DETAIL EMPH
MAIN EMPH
NL EMPH
NL DEEMPH
WHIP NOICAN
PICTURE CONTROL
Y/C MIX
Y-LPF
SYNC SEP
LPF
DELAY
AGC DET
VIDEO AGC
QV/QH INS CHARA INS W/D CLIP
VIDEO AMP
LIM
CORR
K1
K2
DOC
ATT
YCR
PIC CONT
YNR CTL
NC CTL
VCC
GND
COMP
PD2
1HDL
SW LIM AMP
FREQ PHASE CONVERTER
PD1
SLH
TIMIG GEN
BIAS CENTER
2.5STAGES CCD
OUTPUT AMP SAMPLE & HOLD
858STAGES CCD
847STAGES CCD
GENERATOR RD VOLTAGE
CIRCUIT 1 AUTO BIAS
CCT 2 AUTO BIAS
SHAPER WAVE
CLAMP SYNC TIP
CLOCK DRIVER
COMPARATOR PHASE
OUTPUT AMP SAMPLE & HOLD
842.5STAGES CCD
8STAGES CCD
DETECTOR DUTY CYCLE
GENERATOR TIMING
VCO
1/3
PC
H SDC
SYNC SEP
V OUT

① IV001, Pin ⑮ E-9  PLAY V:100mV/div H:5ms/div	⑥ IV001, Pin ㊳ D-4  PLAY V:100mV/div H:10ms/div	⑪ IV001, Pin ㊹ E-4  REC (SP) V:200mV/div H:0.1µs/div
② IV001, Pin ⑮ E-9  PLAY V:100mV/div H:20µs/div	⑦ IV001, Pin ㊻ E-4  PLAY V:100mV/div H:50µs/div	⑫ IV001, Pin ⑦ F-6  REC V:100mV/div H:20µs/div
③ IV001, Pin ⑰ E-9  PLAY V:50mV/div H:20µs/div	⑧ IV001, Pin ㊻ E-4  PLAY V:200mV/div H:20µs/div	⑬ TV011, Emitter (75Ω load) G-7  REC V:500mV/div H:20µs/div
④ IV001, Pin ㉑ D-8  PLAY V:50mV/div H:10µs/div	⑨ TV011, Emitter (75Ω load) G-7  PLAY V:50mV/div H:20µs/div	
⑤ IV001, Pin ⑨ G-7  PLAY V:1V/div H:20µs/div	⑩ IV001, Pin ㊳ D-4  REC (SP) V:50mV/div H:20µs/div	

8-7. 3DNR CIRCUIT DIAGRAM

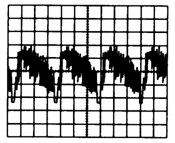

1
2
3
4
5
6
A
B
C
D
E
F
G
0094M 3DNR
V:REC
(V):PLAY
HR001
3DNR MODU
RR011 3.3k
TR007 2SC2236Y
RR014 0.82
RR012 3.3k
5.8V (5.7V)
5.5V (5.4V)
5V (4.9V)
DR001 5V1
DR002 IN4448
BF301
FSC1 1
GND 2
PB COLOUR 3
JR010 1.5k
JR001 0.01µ
PLAY SIGNAL
PIN1 AND PIN2: TO WV081 0005M VIDEO (PAGE 3-52)
PIN3: TO WV081 0005M VIDEO (PAGE 3-52)
CR011 47µ
CR012 0.01µ
1 C SYNC
2 NC
3 IIC DATA
4 IIC CLOCK
5 KILLER
6 PV/PH
7 GND
8 VIDEO OUT
9 GND
10 PB C
11 GND
12 EE/PB Y
13 ON/OFF 5V
14 FSC
TR004 2SA1048
12.7V (12.8V)
0.4V (0.4V)
RR009 1.2k
CR009 0.1µ
4.4V (4.4V)
0V (0V)
11.9V (11.9V)
12.8V (12.8V)
5V (4.9V)
0.9V (0V)
CR013 100µ
TR003 RN1204
RR010 4.7k
TR006 2SC2458
0.4V (0.7V)
RR08 4.7k
RR015 3.3k
CR010 100n
BF402
1 IIC-D SW
2 IIC-CLK SW
3 NC
4 +6VE
5 NC
6 POWER ON
7 NC
8 PV/PH
9 GND
10 4.43 /3.58
11 NC
12 NC
TO BF401 0005M VI (PAGE 3-
BF202
+12VE 1
C SYNC 2
GND 3
EE PB MOD 4
GND 5
V EE PB 6
GND 7
EE PB I 8
NC 9
NC 10
NC 11
NC 12
PLAY SIGNAL
PLAY SIGNAL
TO BF101 0030M TERMINAL (I/O) (PAGE 3-43)

⑪ IV001, Pin ㊹ E-4



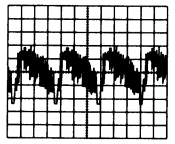
REC (SP)
V:200mV/div
H:0.1µs/div

⑫ IV001, Pin ⑦ F-6



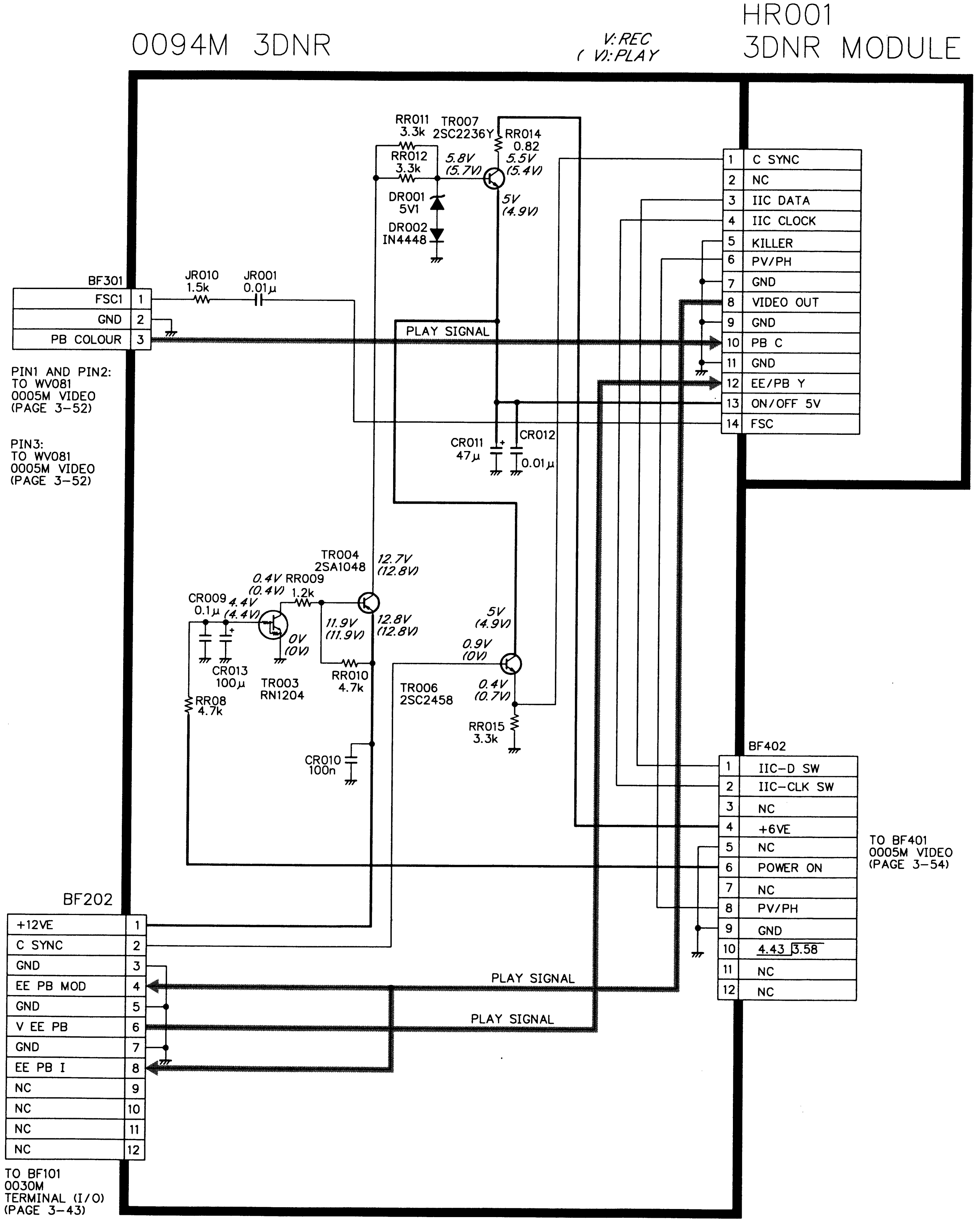
REC
V:100mV/div
H:20µs/div

⑬ TV011, Emitter (75Ω load) G-7



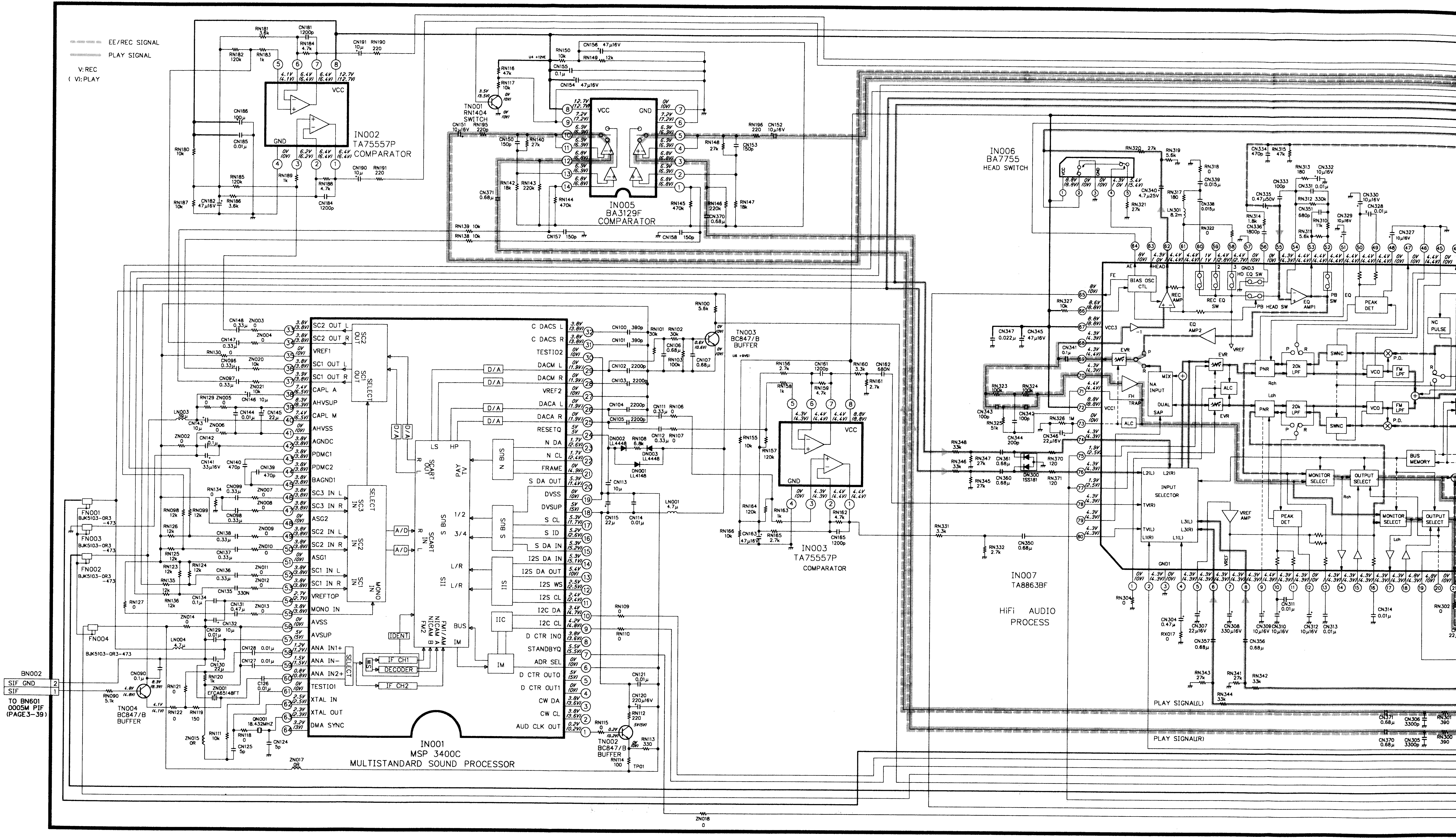
REC
V:500mV/div
H:20µs/div

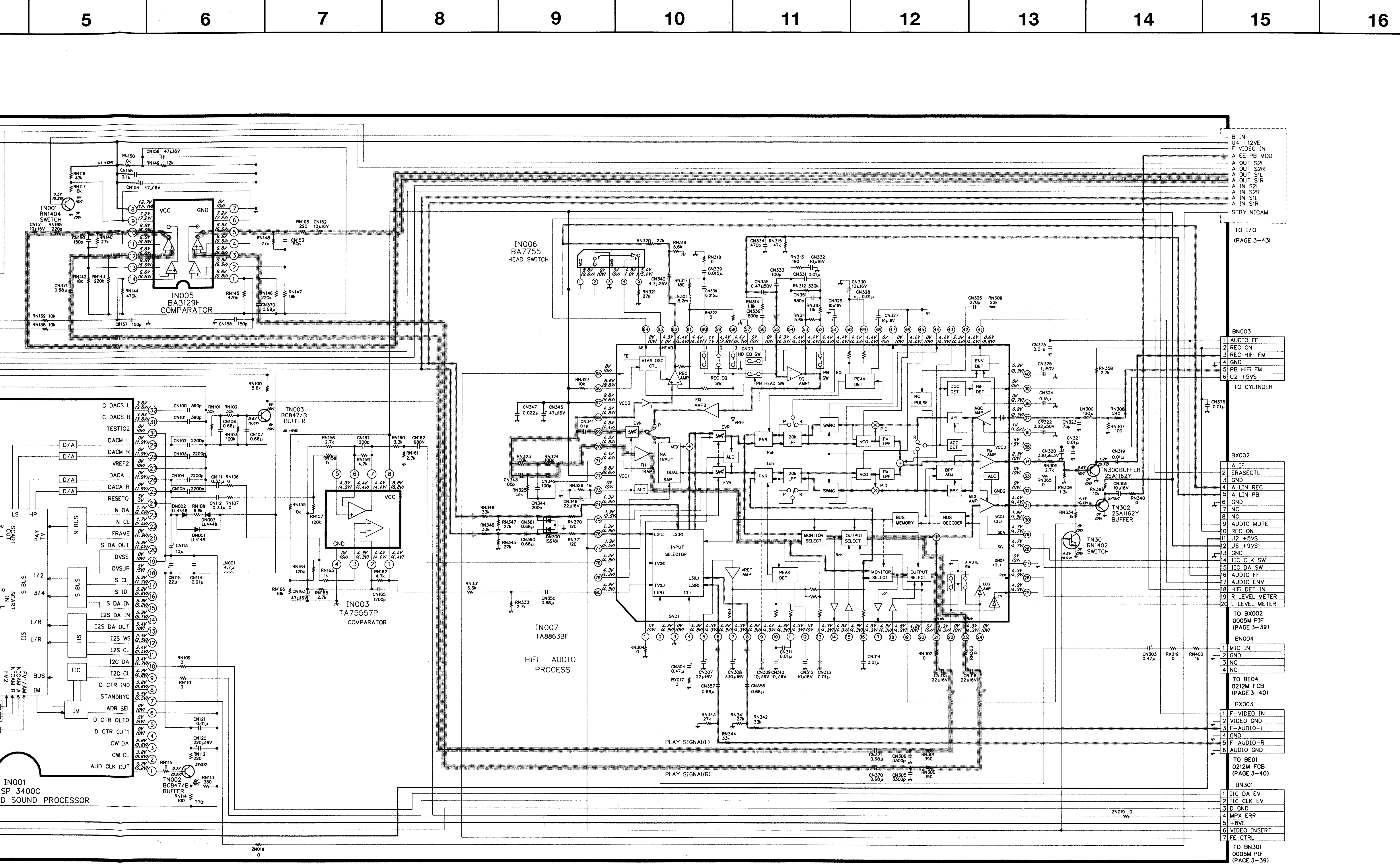
8-7. 3DNR CIRCUIT DIAGRAM


0094M 3DNR
V:REC
(V):PLAY
HR001
3DNR MODULE
RR011 3.3k
TR007 2SC2236Y
RR014 0.82
RR012 3.3k
5.8V (5.7V)
5.5V (5.4V)
5V (4.9V)
DR001 5V1
DR002 IN4448
BF301
FSC1 1
GND 2
PB COLOUR 3
JR010 1.5k
JR001 0.01µ
PLAY SIGNAL
PIN1 AND PIN2: TO WV081 0005M VIDEO (PAGE 3-52)
PIN3: TO WV081 0005M VIDEO (PAGE 3-52)
CR011 47µ
CR012 0.01µ
1 C SYNC
2 NC
3 IIC DATA
4 IIC CLOCK
5 KILLER
6 PV/PH
7 GND
8 VIDEO OUT
9 GND
10 PB C
11 GND
12 EE/PB Y
13 ON/OFF 5V
14 FSC
TR004 2SA1048
12.7V (12.8V)
0.4V (0.4V)
RR009 1.2k
CR009 0.1µ
4.4V (4.4V)
11.9V (11.9V)
12.8V (12.8V)
0V (0V)
CR013 100µ
TR003 RN1204
RR010 4.7k
RR08 4.7k
5V (4.9V)
0.9V (0V)
0.4V (0.7V)
TR006 2SC2458
RR015 3.3k
CR010 100n
BF402
1 IIC-D SW
2 IIC-CLK SW
3 NC
4 +6VE
5 NC
6 POWER ON
7 NC
8 PV/PH
9 GND
10 4.43 3.58
11 NC
12 NC
TO BF401 0005M VIDEO (PAGE 3-54)
BF202
+12VE 1
C SYNC 2
GND 3
EE PB MOD 4
GND 5
V EE PB 6
GND 7
EE PB I 8
NC 9
NC 10
NC 11
NC 12
PLAY SIGNAL
PLAY SIGNAL
TO BF101 0030M TERMINAL (I/O) (PAGE 3-43)

8-8. AUDIO CIRCUIT DIAGRAM

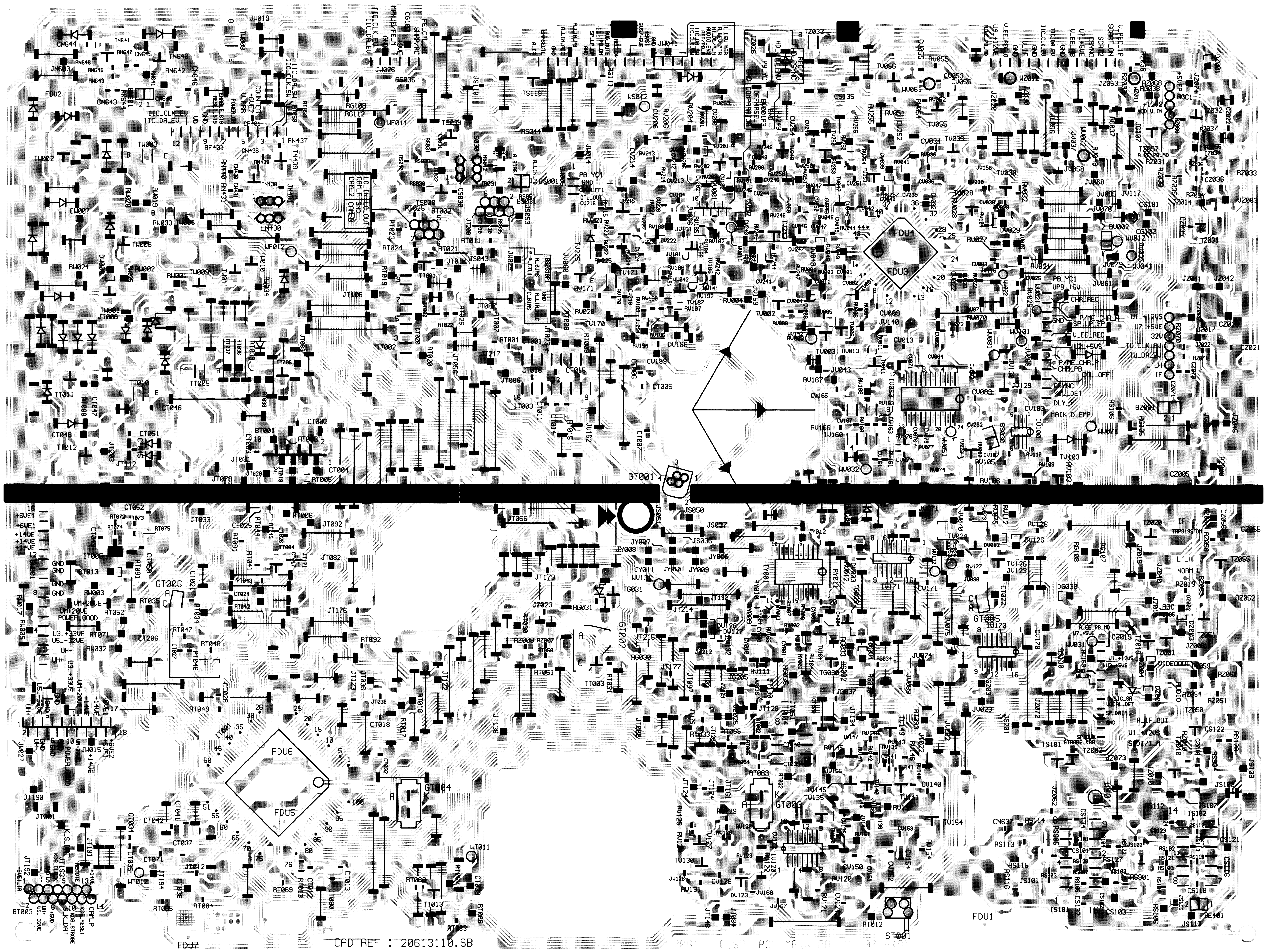
0030M TERMINAL (MPX/AUDIO)


EE/REC SIGNAL
PLAY SIGNAL
V: REC
(V): PLAY
IN002
TA75557P
COMPARATOR
TN001
RN1404
SWITCH
IN005
BA3129F
COMPARATOR
IN006
BA7755
HEAD SWITCH
TN003
BC847/B
BUFFER
IN003
TA75557P
COMPARATOR
IN001
MSP 3400C
MULTISTANDARD SOUND PROCESSOR
IN007
TA8863BF
HiFi AUDIO
PROCESS
TN002
BC847/B
BUFFER
TN004
BC847/B
BUFFER
BN002
SIF GND
SIF
TO BN601
0005M P1F
(PAGE 3-39)
FN001
BJK5103-0R3-473
FN003
BJK5103-0R3-473
FN002
BJK5103-0R3-473
FN004
BJK5103-0R3-473
QN001
18.432MHZ
PLAY SIGNAL(L)
PLAY SIGNAL(R)
SC2 OUT L
SC2 OUT R
VREF1
SC1 OUT L
SC1 OUT R
CAPL A
AHVSUP
CAPL M
AHVSS
AGNDC
PDMC1
PDMC2
BAGND1
SC3 IN L
SC3 IN R
ASG2
SC2 IN L
SC2 IN R
ASG1
SC1 IN L
SC1 IN R
VREFTOP
MONO IN
AVSS
AVSUP
ANA IN1+
ANA IN−
ANA IN2+
TESTIO1
XTAL IN
XTAL OUT
DMA SYNC
C DACS L
C DACS R
TESTIO2
DACM L
DACM R
VREF2
DACA L
DACA R
RESETQ
N DA
N CL
FRAME
S DA OUT
DVSS
DVSUP
S CL
S ID
S DA IN
I2S DA IN
I2S DA OUT
I2S WS
I2S CL
I2C DA
I2C CL
D CTR INO
STANDBYQ
ADR SEL
D CTR OUTO
D CTR OUT1
CW DA
CW CL
AUD CLK OUT
IF CH1
DECODER
IF CH2
IDENT
SELECT
D/A
A/D
SCART OUT
SCART IN
HIFI
BIAS OSC CTL
REC AMP
EQ AMP1
EQ AMP2
PEAK DET
NC PULSE
EVR
MIX
NA INPUT
DUAL SAP
FH TRAP
ALC
PNR
20k LPF
SWNC
VCO
FM LPF
INPUT SELECTOR
MONITOR SELECT
OUTPUT SELECT
BUS MEMORY
VREF AMP
REC EQ SW
HD EQ SW
PB HEAD SW
PB SW
EQ
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G

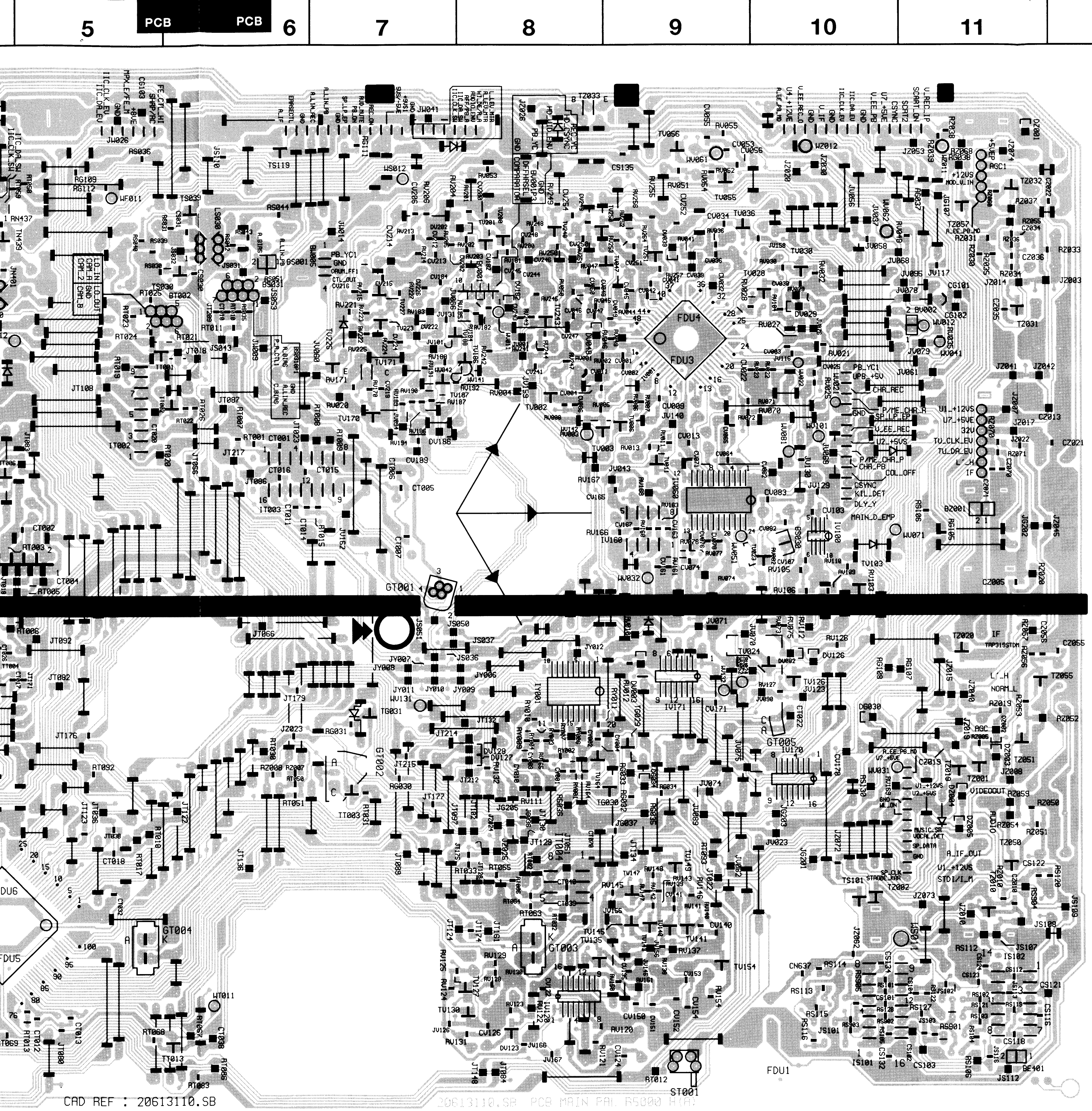

5
6
7
8
9
10
11
12
13
14
15
16
IN005
BA3129F
COMPARATOR
TN001
RN1404
SWITCH
IN001
SP 3400C
D SOUND PROCESSOR
TN002
BC847/B
BUFFER
TN003
BC847/B
BUFFER
IN003
TA75557P
COMPARATOR
IN006
BA7755
HEAD SWITCH
IN007
TA8863BF
HiFi AUDIO
PROCESS
TN300 BUFFER
2SA1162Y
TN302
2SA1162Y
BUFFER
TN301
RN1402
SWITCH
PLAY SIGNAL(L)
PLAY SIGNAL(R)
B IN
U4 +12VE
F VIDEO IN
A EE PB MOD
A OUT S2L
A OUT S2R
A OUT S1L
A OUT S1R
A IN S2L
A IN S2R
A IN S1L
A IN S1R
STBY NICAM
TO I/O
(PAGE 3-43)
BN003
1 AUDIO FF
2 REC ON
3 REC HiFi FM
4 GND
5 PB HiFi FM
6 U2 +5VS
TO CYLINDER
BX002
1 A IF
2 ERASECTL
3 GND
4 A LIN REC
5 A LIN PB
6 GND
7 NC
8 NC
9 AUDIO MUTE
10 REC ON
11 U2 +5VS
12 U6 +9VS1
13 GND
14 IIC CLK SW
15 IIC DA SW
16 AUDIO FF
17 AUDIO ENV
18 HiFi DET IN
19 R LEVEL METER
20 L LEVEL METER
TO BX002
0005M PIF
(PAGE 3-39)
BN004
1 MIC IN
2 GND
3 NC
4 NC
TO BE04
0212M FCB
(PAGE 3-40)
BX003
1 F-VIDEO IN
2 VIDEO GND
3 F-AUDIO-L
4 GND
5 F-AUDIO-R
6 AUDIO GND
TO BE01
0212M FCB
(PAGE 3-40)
BN301
1 IIC DA EV
2 IIC CLK EV
3 D GND
4 MPX ERR
5 +8VE
6 VIDEO INSERT
7 FE CTRL
TO BN301
0005M PIF
(PAGE 3-39)

9. PC BOARDS

9-1. MAIN PC BOARD (PIF, SERVO/LOGIC, VIDEO)


CAD REF : 20613110.SB
20613110.SB PCB MAIN PAL RS000
FDU1
FDU3
FDU4
FDU5
FDU6
FDU7
GT001
GT002
GT003
GT004
GT005
GT006
ST001

0005M Main (PIF, Servo/Logic, Video) PC Board


5
PCB
PCB
6
7
8
9
10
11
12
13
14
15
16
FDU4
FDU3
FDU5
FDU1
DU6
GT001
GT002
GT003
GT004
GT005
ST001
CAD REF : 20613110.SB
20613110.SB PCB MAIN PAL R5000 H(A)

0005M Main (PIF, Servo/Logic, Video) PC Board

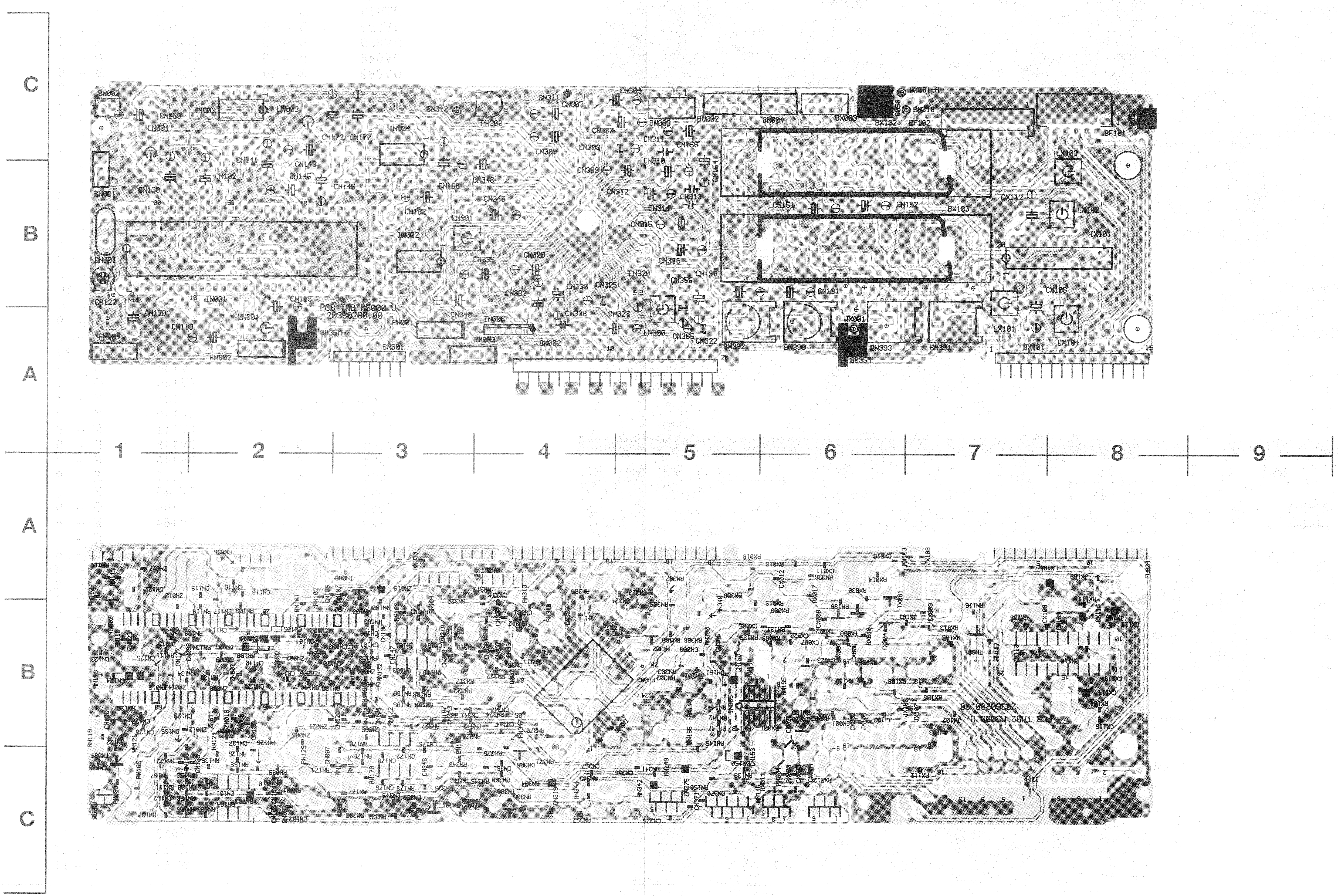
SYMBOL No.	LOCATION
DG030	E - 10
DG034	E - 9
DT013	E - 3
DV029	B - 10
DV039	B - 9
DV048	B - 8
DV082	E - 10
DV123	G - 8
DV126	E - 10
DV127	E - 8
DV128	E - 8
DV182	B - 8
DV186	C - 7
DV202	B - 7
DW006	C - 3

SYMBOL No.	LOCATION
GT002	E - 7
GT003	F - 8
GT004	F - 6
GT005	E - 10
GT006	E - 4

SYMBOL No.	LOCATION
IT001	F - 4
IT002	C - 5
IT003	D - 6
IT004	F - 8
IT005	E - 3
IV001	C - 9
IV060	C - 9
IV120	G - 8
IV160	D - 9
IV170	E - 10
IV171	E - 9
IY001	E - 8

SYMBOL No.	LOCATION
TG029	E - 9
TG030	E - 9
TN430	B - 4
TN439	B - 5
TN640	A - 4
TN641	A - 3
TS030	B - 6
TS039	A - 6
TT001	C - 6
TT002	C - 5
TT003	F - 7
TT004	E - 4
TT005	C - 4
TT006	C - 4
TT010	C - 3
TT011	C - 3
TT012	D - 3
TT013	G - 5
TV002	C - 8
TV011	C - 9
TV028	B - 10
TV036	B - 9
TV047	B - 9
TV055	A - 9
TV126	E - 10
TV127	G - 8
TV130	G - 9
TV135	F - 8
TV140	F - 9
TV141	F - 9
TV143	F - 9
TV145	F - 8
TV147	F - 9
TV149	F - 9
TV154	G - 9
TV164	E - 8
TV170	C - 7
TV188	B - 8
TV200	B - 8
TV201	B - 8
TV223	B - 7
TV225	B - 7
TV227	B - 7
TV243	B - 8
TV248	B - 8
TV250	B - 9
TV251	B - 9
TW001	C - 3
TW002	B - 3
TW003	B - 3
TW005	B - 4
TW006	B - 3
TW009	C - 4
TZ032	A - 11
TZ033	A - 8
TZ050	E - 11
TZ051	E - 11
TZ057	B - 11

9-2. TERMINAL (MPX/AUDIO,TERMINAL) PC Board

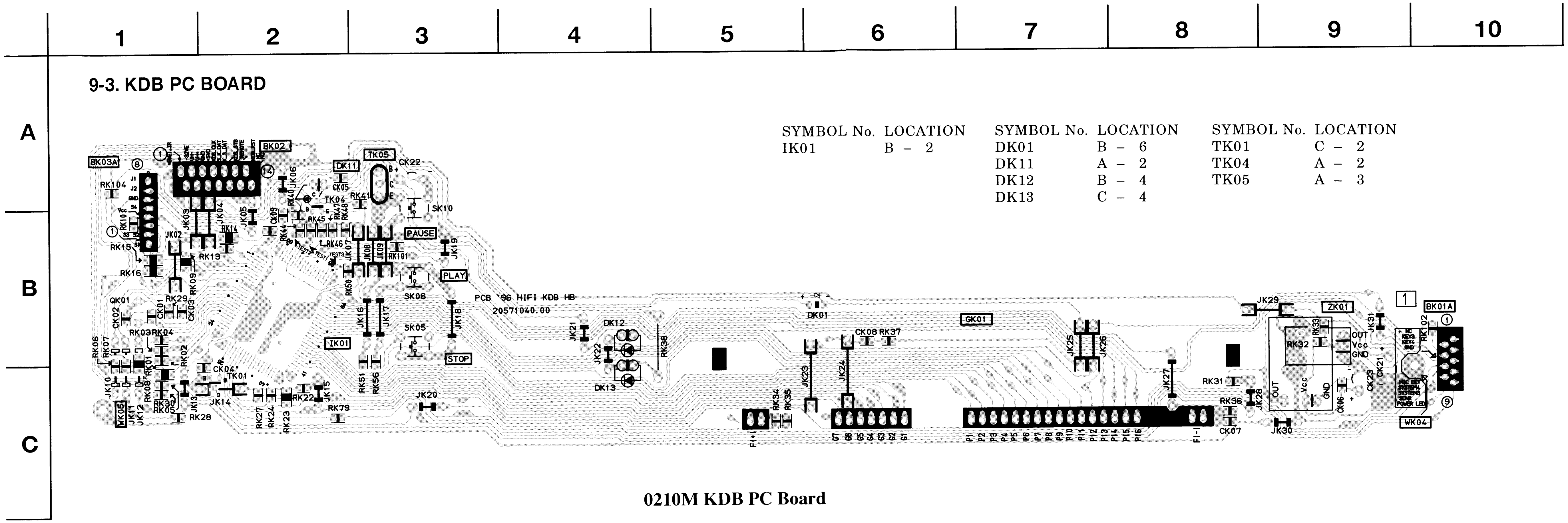

C
B
A
1
2
3
4
5
6
7
8
9
A
B
C
PCB TMB A5000 U
20380280.00
0035M-A
0035M
20380280.00
PCB TMB2 A5000 U

0030M Terminal (MPX/Audio, Terminal) PC Board

SYMBOL No.	LOCATION
IN001	B – 2
IN002	B – 3
IN003	C – 2
IN004	C – 3
IN005	B – 5
IN006	A – 4
IN007	B – 5
IX101	B – 8
DN001	B – 2
DN002	B – 2
DN003	B – 2
DN151	B – 5
DN300	C – 4
TN001	B – 7
TN002	B – 1
TN003	A – 3
TN004	C – 1
TN300	C – 4
TN301	C – 3
TN302	B – 5

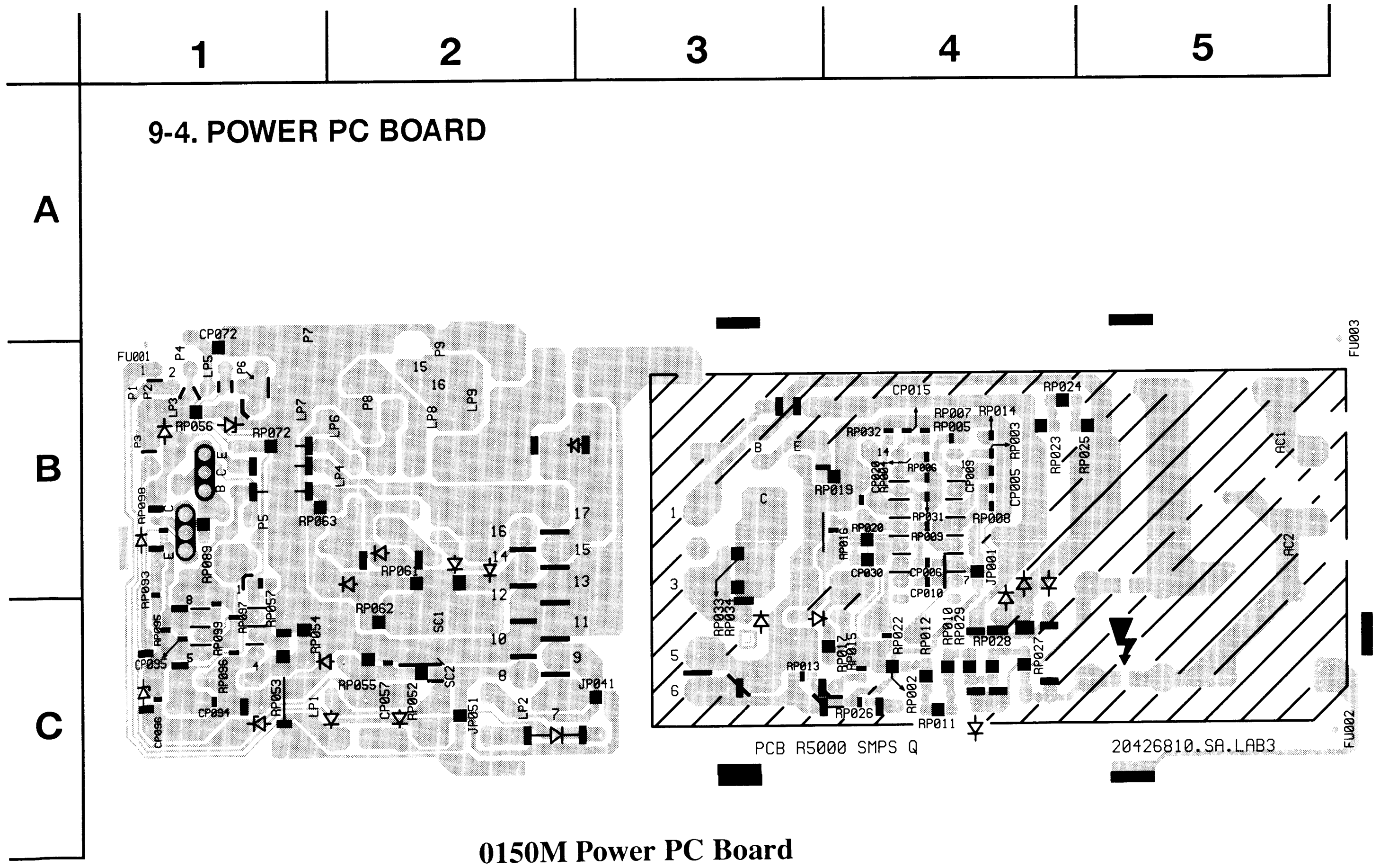
9-3. KDB PC BOARD

SYMBOL No.	LOCATION	SYMBOL No.	LOCATION	SYMBOL No.	LOCATION
IK01	B – 2	DK01	B – 6	TK01	C – 2
		DK11	A – 2	TK04	A – 2
		DK12	B – 4	TK05	A – 3
		DK13	C – 4		


1
2
3
4
5
6
7
8
9
10
A
B
C
BK03A
BK02
DK11
TK05
CK22
SK10
PAUSE
PLAY
SK06
SK05
STOP
IK01
PCB '96 HIFI KDB HB
20571040.00
DK12
DK13
DK01
GK01
JK29
ZK01
BK01A
WK04
WK05
OUT
Vcc
GND

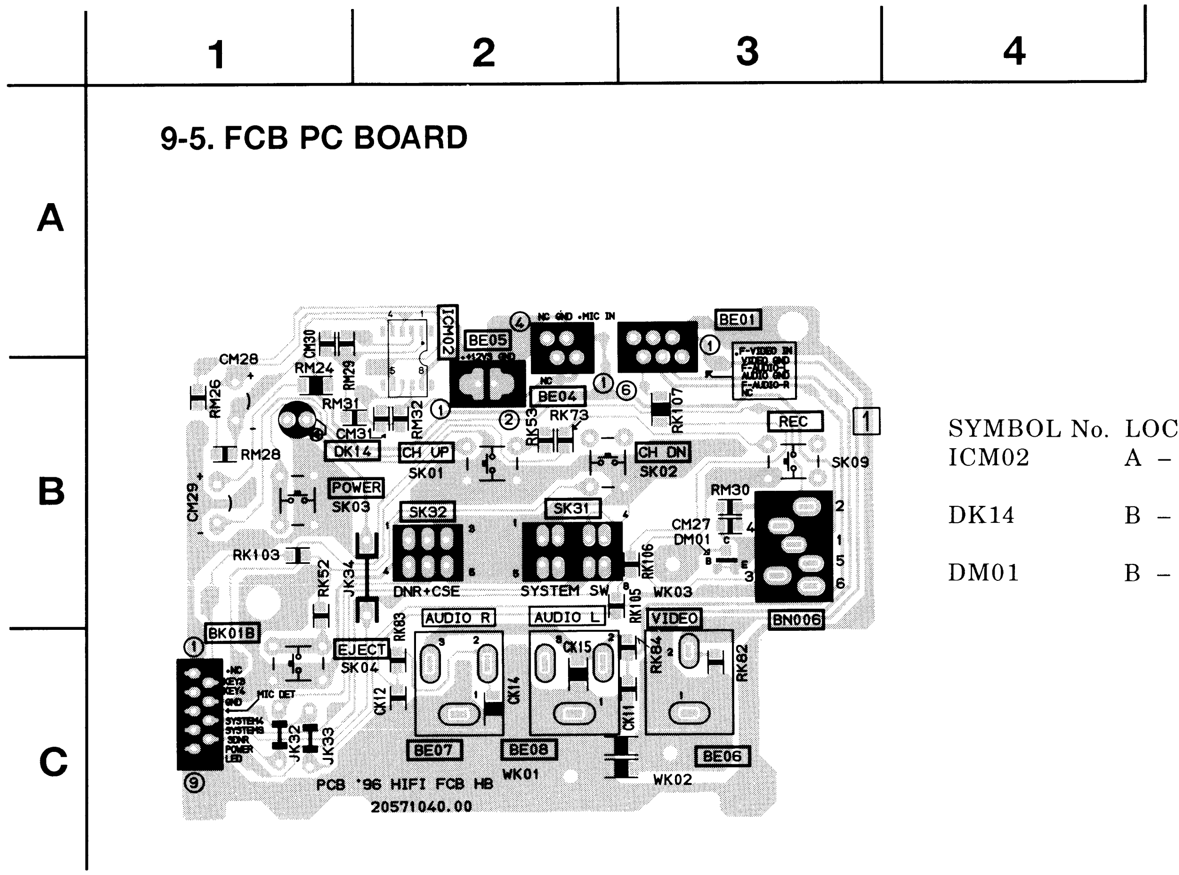
0210M KDB PC Board

9-4. POWER PC BOARD


1
2
3
4
5
A
B
C
FU001
CP072
SC1
SC2
JP041
PCB R5000 SMPS Q
20426810.SA.LAB3
FU002
FU003
AC1
AC2

0150M Power PC Board

9-5. FCB PC BOARD


1
2
3
4
A
B
C
ICM02
BE05
BE04
BE01
REC
SK09
CH UP
CH DN
POWER
SK32
SK31
DNR+CSE
SYSTEM SW
AUDIO R
AUDIO L
VIDEO
EJECT
BK01B
BE07
BE08
BE06
BN006
PCB '96 HIFI FCB HB
20571040.00

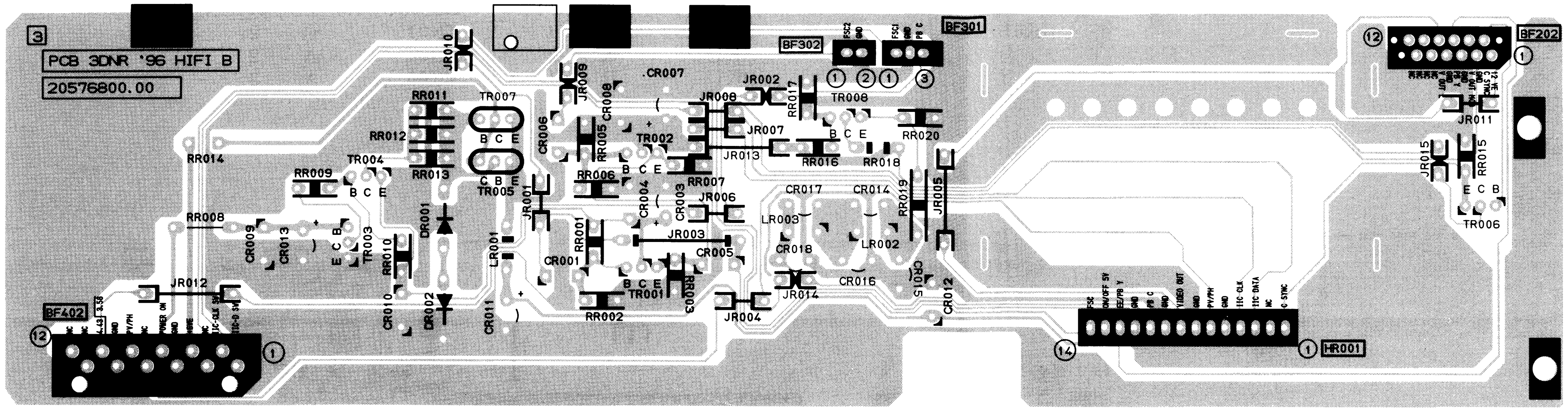
SYMBOL No.	LOCATION
ICM02	A – 2
DK14	B – 2
DM01	B – 3

0212M FCB PC Board

1 2 3 4 5 6 7 8 9 10

A
B
C

9-6. 3DNR PC BOARD



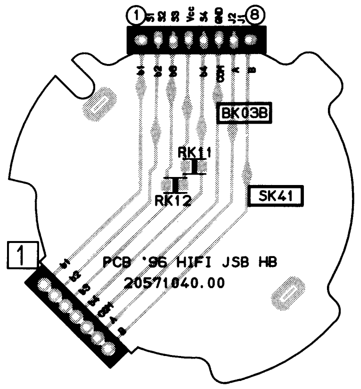
3
PCB 3DNR '96 HIFI B
20576800.00
BF302
BF301
BF202
BF402
HR001
JR010
JR009
CR007
CR008
JR002
JR008
RR017
TR008
RR011
TR007
RR012
RR013
TR005
RR005
TR002
JR007
JR013
RR016
RR018
RR020
RR014
RR009
TR004
RR006
RR007
CR004
CR003
JR006
CR017
CR014
RR019
JR005
JR011
JR015
RR015
TR006
RR008
CR009
CR013
TR003
RR010
DR001
LR001
JR001
RR001
CR001
JR003
CR005
LR003
LR002
CR018
CR016
CR015
CR012
JR012
CR010
DR002
CR011
TR001
RR003
RR002
JR004
JR014
CR006
B C E
C B E
E C B
12
1
14

SYMBOL No.	LOCATION
DR001	B – 3
DR002	B – 3
TR003	B – 3
TR004	B – 3
TR005	B – 3
TR006	B – 8

1 2 3 4

A
B
C

9-7. JSB PC BOARD



1
8
BK03B
RK11
RK12
SK41
PCB '96 HIFI JSB HB
20571840.00

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ⚠ mark are critical for safety. Replace only with part number specified.
The mounting position of replacement is to be identical with originals.
The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.
Parts marked # are of chip type and mounted on original PC boards.
However, when they are placed for servicing works, use discrete parts listed on the parts list.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 - 10	+ 50 - 10	+ 75 - 10	+ 20 - 10	+ 100 - 10	+ 40 - 20	+ 150 - 10	+ 80 - 20

Ex. 10μF J = 10μF ± 5%

- **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

3. Resistor (Res)

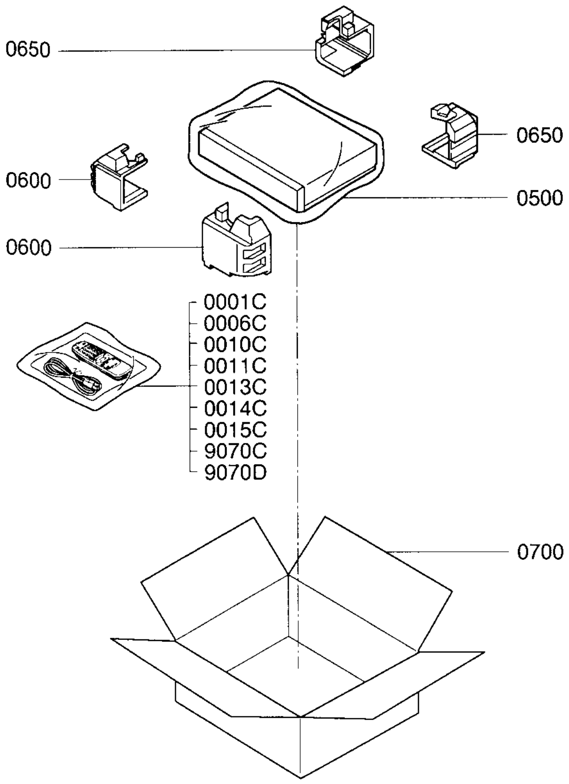
- **Resistance tolerance**

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

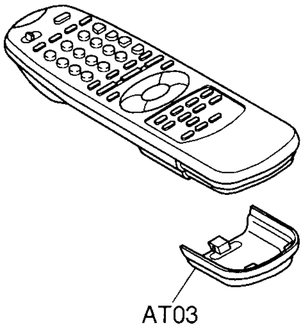
Ex. 470Ω J = 470Ω ± 5%

4. EXPLODED VIEWS

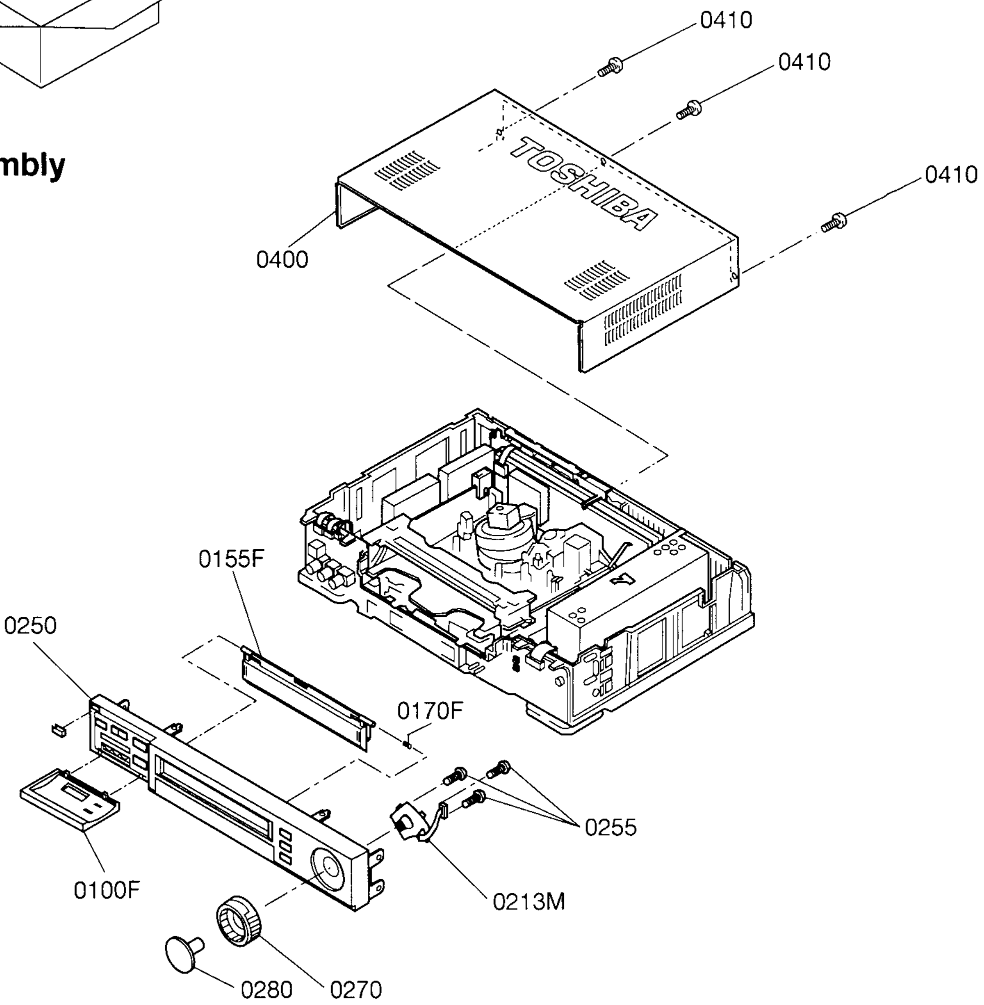
4-1. Packing Assembly


0650
0650
0600
0500
0600
0001C
0006C
0010C
0011C
0013C
0014C
0015C
9070C
9070D
0700

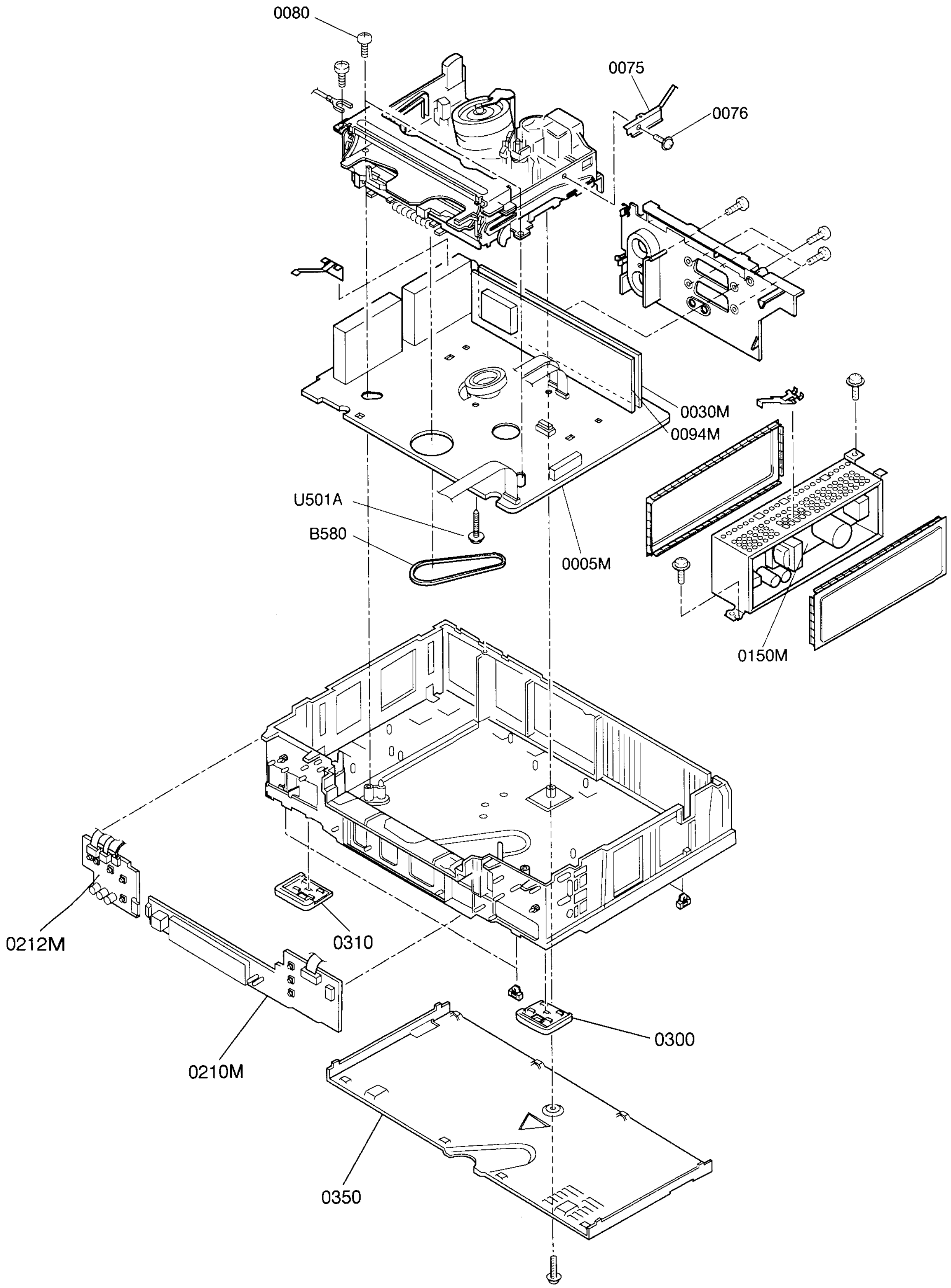
4-2. Remote control Unit



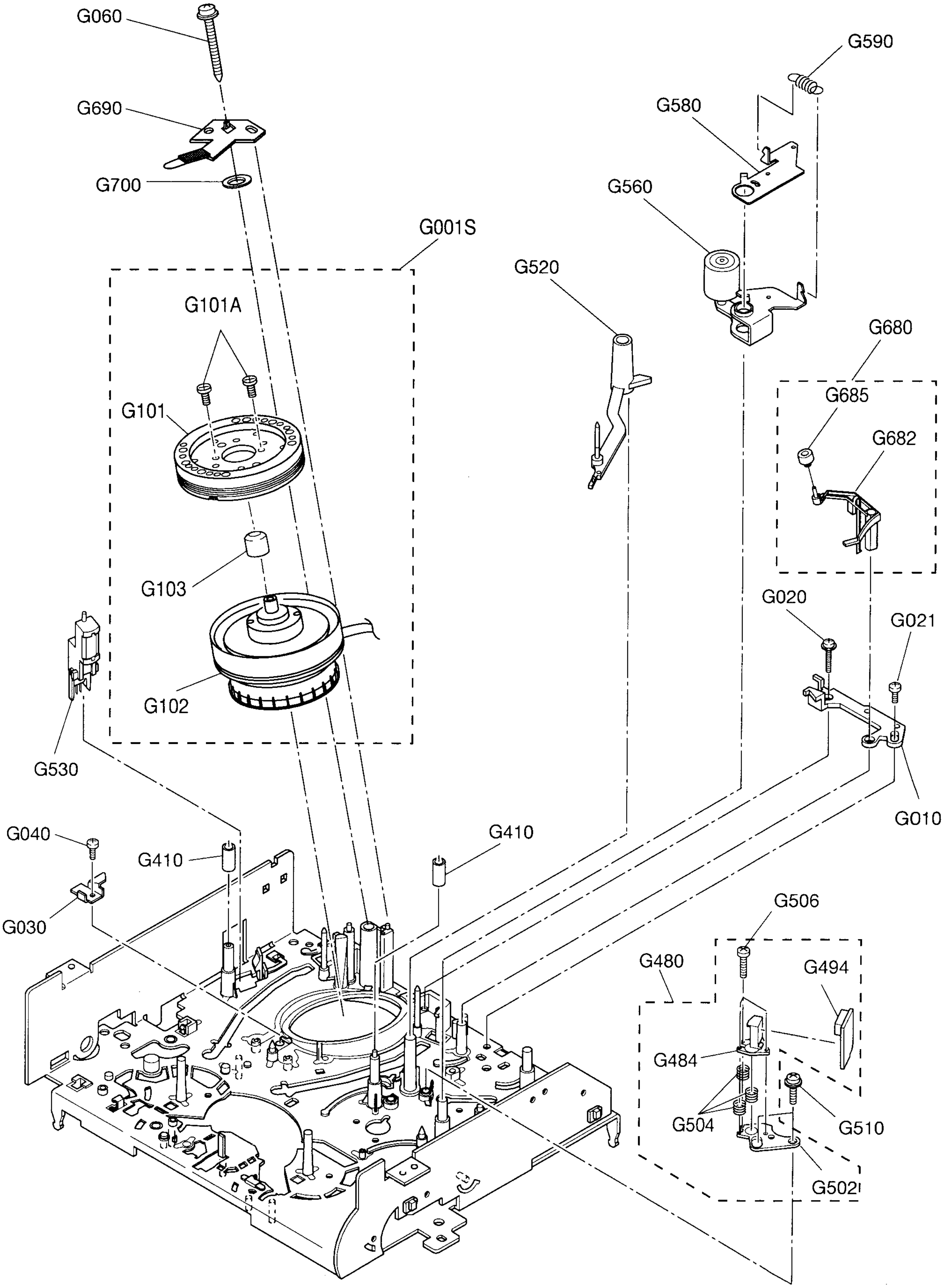
4-3. Cabinet Assembly


0410
0410
0410
TOSHIBA
0400
0155F
0250
0170F
0255
0100F
0213M
0280
0270

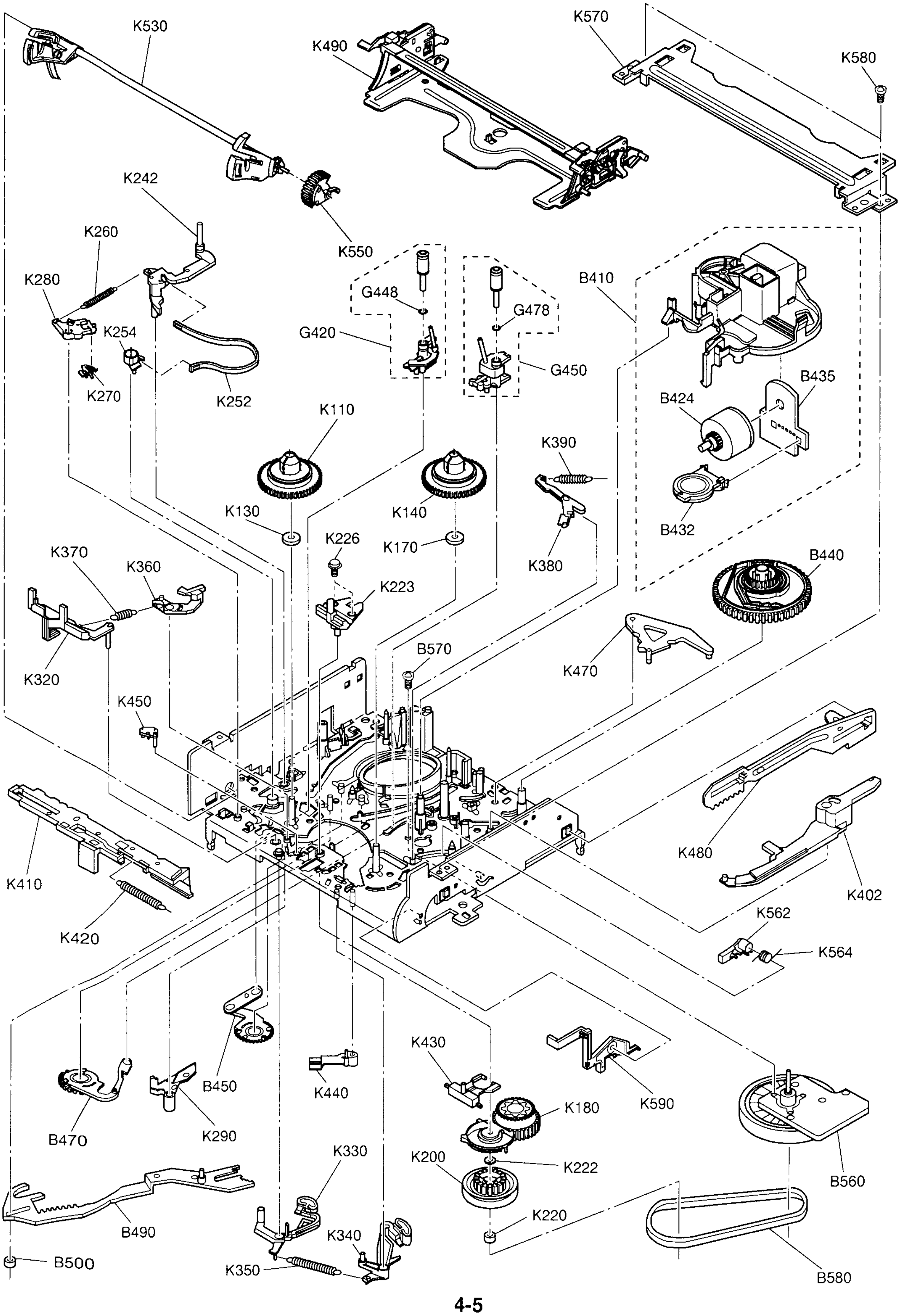
4-4. Chassis Assembly


0080
0075
0076
0030M
0094M
U501A
B580
0005M
0150M
0212M
0310
0300
0210M
0350

4-5. Mechanism Assembly (1)


G060
G590
G690
G580
G700
G560
G001S
G520
G101A
G680
G685
G101
G682
G103
G020
G021
G102
G530
G010
G040
G410
G410
G030
G506
G480
G494
G484
G510
G504
G502

4-6. Mechanism Assembly (2)


K530
K570
K490
K580
K242
K260
K550
K280
G448
B410
G478
G420
K254
G450
B435
K270
K252
K110
B424
K390
K130
K140
K226
K170
B432
K380
B440
K370
K360
K223
K320
B570
K470
K450
K410
K480
K402
K420
K562
K564
B450
K430
K440
K590
K180
B470
K290
K330
K200
K222
B560
B490
K220
K340
B500
K350
B580

5. PARTS LIST

- MECHANICAL PARTS -

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
⚠0001C	70061680	Owner's Manual	G/I
0010C	70012575	Remote Control Unit	
0013C	70011442	Cable	
⚠0014C	70011387	Mains Cord	
0150F	70051786	Magnet	
0155F	70051892	Cassette Door	
0170F	70051372	Spring	
⚠0250	70051882	Front Panel	
0270	70051852	Knob	
0280	70051853	Knob	
0300	70869451	Insulator(Right)	
0310	70869452	Insulator(Left)	
⚠0350	70051766	Bottom Plate	
⚠0400	70824403	Top Cover	
0600	70061764	Packing(Bottom)	
0650	70061765	Packing(Top)	
9070C	70061700	Quick Reference	German
9070D	70061810	Quick Reference	Italian
AT03	70108916	Case, Battery	
B410	70031394	Loading Drive Assy	
B424	70031396	Loading Motor Sub Assy	
B432	70031401	Cam Switch	
B435	70031402	Loading Drive Unit	
B440	70051147	Cam Gear	
B450	70031404	S Loading Assy	
B470	70031408	T Loading Assy	
B490	70031412	Loading Slider Assy	
B560	70031744	Capstan Motor Assy	
B570	70070028	Screw, 2.6x6mm	
B580	70031442	Reel Belt	
G001S	70031739	Cylinder Assy	
G010	70031444	Plate(Cylinder)	
G020	70031643	Screw	2.6x5mm
G021	70031644	Screw	2.6x5mm
G030	70031445	Plate(Cylinder)	
G040	70031644	Screw	2.6x5mm
G060	70031449	Screw	
G101	70031695	Upper Cylinder Assy	
G101A	70031521	Screw	
G101C	70391398	Screw	2.6x8mm
G102	70031741	Lower Cylinder Assy	
G103	70031683	Ground Cap Assy	
G104	70325786	Ground Cap	
G181	70391422	Screw	2x4mm
G410	70031348	Guide Sleeve	
G420	70031349	S Slider Assy	
G448	70031505	O Ring	
G450	70031360	T Slider Assy	
G480	70031512	ACE Head Assy	
G484	70031511	ACE Sub Base Assy	
G504	70031508	Spring	
G520	70031370	No.9 Guide Lever Assy	
G530	70031443	FE Head	
G560	70031384	Pinch Lever Assy	
G580	70031390	Pinch Drive Assy	
G590	70031392	Spring	
G680	70031493	Cleaner Lever Assy	
G690	70031540	Ground Brush	
K110	70031328	S Reel Assy	
K130	70031334	Washer	
K140	70031335	T Reel Assy	
K170	70031334	Washer	
K180	70031339	Idle Arm Assy	
K200	70031345	Center Gear Pully	
K220	70031503	Washer	
K222	70031527	Washer	
K223	70031454	Center Post Assy	
K242	70031374	Tension Lever Sub Assy	
K252	70031376	Band Brake Sub Assy	
K254	70031377	Band Holder	
K260	70031660	Spring	
K270	70031379	Hook Lever	
K280	70031380	Hook Lever	
K290	70031381	Tension Drive Lever	
K320	70031466	Rec Inhibit Lever	
K330	70031420	S Main Brake Assy	
K340	70031421	T Main Brake Assy	
K350	70031422	Spring	
K360	70031469	S Soft Brake Lever	
K370	70031423	Spring	
K380	70031424	T Soft Brake Assy	
K390	70031426	Spring	
K402	70031471	Drive Lever	
K410	70031427	Cam Slider	
K420	70031428	Spring	
K430	70031472	Idle Up Down Lever	
K440	70031473	Idle Kick Lever	
K450	70031476	Idle Centering Lever	
K470	70031477	Cam Lever	
K480	70031430	FL Drive Slider	
K490	70031431	Cassette Holder Assy	
K530	70031415	Drive Arm Assy	
K550	70051150	Drive Lever Gear	
K562	70031482	Arm Brake Lever	
K564	70031440	Spring	
K570	70031441	Top Bracket	
K590	70031483	Door Open Lever	
U501A	70070070	Screw	

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
		- ELECTRICAL PARTS -	
0100	70095096	Main Assy	
■0005M		P C Board Assy	Main
		- INTEGRATED CIRCUITS -	
IT001	70012688	IC	TMP90CS74DF-7882
IT002	70011888	IC	TA7291S
IT003	70011887	IC	TB6515AP
IT004	70012488	IC	ST24C08
IT005	70011808	IC	PST7032MT
IV001	70012594	IC	LA7447BM
IV060	70012440	IC	LC89970M
IV100	70012463	IC	LA7356M
IV120	70012442	IC	74HC4053
IV160	70010969	IC	BA7046
IV170	70010981	IC	MC14094BD
IV171	70010981	IC	MC14094BD
IY001	70012607	IC	SDA5649X
		- TRANSISTORS -	
GT05A	70010181	Transistor, Photo	PT493F
GT06A	70010181	Transistor, Photo	PT493F
TG029	A6004020	Transistor, Chip	RN1402
TG030	A6004020	Transistor, Chip	RN1402
TG031	70010947	Transistor	BC858
TN430	70012432	Transistor, Chip	2SC2859Y
TN439	70010150	Transistor	BC848B
TN640	70010150	Transistor	BC848B
TN641	70010150	Transistor	BC848B
TS030	70012432	Transistor, Chip	2SC2859Y
TS039	70010150	Transistor	BC848B
TT001	A6004040	Transistor, Chip	RN1404
TT002	A6004040	Transistor, Chip	RN1404
TT003	70010150	Transistor	BC848B
TT004	70012032	Transistor, Chip	2SA1162GR
TT005	70011386	Transistor	2SA1020-Y
TT006	70010150	Transistor	BC848B
TT010	70010131	Transistor	BC337-40
TT011	70010942	Transistor	BC848
TT012	70010942	Transistor	BC848
TT013	70010947	Transistor	BC858
TV002	A6004020	Transistor, Chip	RN1402
TV011	70010947	Transistor	BC858
TV028	70010150	Transistor	BC848B
TV036	A6004020	Transistor, Chip	RN1402
TV047	70010947	Transistor	BC858
TV055	70010150	Transistor	BC848B
TV103	A6004020	Transistor, Chip	RN1402
TV126	70011788	Transistor, Chip	RN2402
TV127	70010947	Transistor	BC858
TV130	70010150	Transistor	BC848B
TV135	70010150	Transistor	BC848B
TV140	70010150	Transistor	BC848B
TV141	70010150	Transistor	BC848B
TV143	70010947	Transistor	BC858
TV145	70010150	Transistor	BC848B
TV147	70010150	Transistor	BC848B
TV149	70010947	Transistor	BC858
TV154	70010150	Transistor	BC848B
TV164	A6004020	Transistor, Chip	RN1402
TV170	A6004020	Transistor, Chip	RN1402
TV188	70010942	Transistor	BC848
TV200	70010150	Transistor	BC848B
TV201	70010150	Transistor	BC848B
TV223	70010150	Transistor	BC848B
TV225	A6004020	Transistor, Chip	RN1402
TV227	70010150	Transistor	BC848B
TV243	70010947	Transistor	BC858
TV248	70010150	Transistor	BC848B
TV250	70010150	Transistor	BC848B
TV251	70010150	Transistor	BC848B
TW001	70010942	Transistor	BC848
TW002	A6014030	Transistor, Chip	RN2403
TW003	A6325549	Transistor	2SC2236-Y
TW005	70010149	Transistor	BD435
TW006	70010947	Transistor	BC858
TW008	A6325549	Transistor	2SC2236-Y
TW009	A6004050	Transistor, Chip	RN1405
TZ020	A6004020	Transistor, Chip	RN1402
TZ032	70010947	Transistor	BC858
TZ050	70010150	Transistor	BC848B
TZ051	70010949	Transistor	BC858
TZ057	70010947	Transistor	BC858
		- DIODES -	
DG030	70010342	Diode, Chip	LL4148
DG034	70010342	Diode, Chip	LL4148
DG035	70010153	Diode	1N4148
DT001	70012342	Diode	1N4001
DT002	70012342	Diode	1N4001
DT003	70012342	Diode	1N4001
DT006	70010334	Diode	1N4448
DT008	70012342	Diode	1N4001
DT009	70011440	Diode	ZP5.1
DT010	70012342	Diode	1N4001
DT011	70012342	Diode	1N4001
DT012	70012342	Diode	1N4001
DT013	70010342	Diode, Chip	LL4148
DT014	70012342	Diode	1N4001
DT015	70012342	Diode	1N4001
DT016	70010153	Diode	1N4148
DT017	70012342	Diode	1N4001
DT018	70012342	Diode	1N4001
DV029	70010965	Diode	LL4448
DV039	70010965	Diode	LL4448
DV044	70010334	Diode	1N4448
DV048	70010965	Diode	LL4448
DV082	70010965	Diode	LL4448
DV123	70010340	Diode	1SS181
DV126	70010965	Diode	LL4448
DV127	70010965	Diode	LL4448
DV128	70010965	Diode	LL4448
DV163	70012509	Diode, Zener	MTZJ4.7C
DV182	70010965	Diode	LL4448
DV186	70010965	Diode	LL4448
DV202	70010965	Diode	LL4448
DW001	70011967	Diode, Zener	ZPD12
DW002	70010334	Diode	1N4448
DW005	70011440	Diode	ZP5.1
DW006	70010965	Diode	LL4448
DW007	70012342	Diode	1N4001
DW008	70012342	Diode	1N4001
DW010	70012436	Diode, Zener	ZPD8.2
DW011	70012541	Diode, Zener	BZX55B2V7
DW012	70010334	Diode	1N4448
DW013	70012342	Diode	1N4001
DW014	70012342	Diode	1N4001
DZ006	70011440	Diode	ZP5.1
GT002	70010180	Diode, LED	GL451V
		- COILS -	
LN430	70012460	Coil, Bias Oscillator	
LN640	70012430	Coil, Peaking	
LN641	70012465	Coil, Peaking	
LS030	70012461	Coil, Bias Oscillator	
LT001	70011953	Coil, Peaking	
LT002	70010803	Coil, Peaking	
LT004	70011953	Coil, Peaking	
LV033	70010920	Coil, Peaking	
LV052	70012096	Coil, Peaking	
LV063	70011576	Coil, Peaking	
LV082	23289101	Coil, Peaking	TRF4101AF
LV151	70011996	Coil, Peaking	
LV153	70011849	Coil, Peaking	
LV200	70010803	Coil, Peaking	
LV214	23289181	Coil, Peaking	TRF4181AF
LV215	23289101	Coil, Peaking	TRF4101AF
LV226	23289181	Coil, Peaking	TRF4181AF
LV245	70012095	Coil, Peaking	
LV246	23289220	Coil, Peaking	TRF4220AF
LV247	70012096	Coil, Peaking	
LV248	70011577	Coil, Peaking	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
LV251	70011996	Coil, Peaking		
LZ001	70011541	Coil, Peaking		
LZ002	70011954	Coil, Peaking		
LZ050	70010924	Coil, Peaking		
LZ051	70010924	Coil, Peaking		
		- CAPACITORS -		
CG104	70041298	Cap, Electrolytic	1μF	M 50V
CG105	24636010	Cap, Electrolytic	1μF	M 50V
CN430	24815272	Cap, Chip	2700pF	K 50V
CN431	70041596	Cap, Chip	10nF	K 50V
CN433	70041977	Cap, Plastic	82nF	J 50V
CN436	70041596	Cap, Chip	10nF	K 50V
CN438	70011572	Cap, Electrolytic	33μF	M 25V
CN637	70041596	Cap, Chip	10nF	K 50V
CN640	70041596	Cap, Chip	10nF	K 50V
CN643	70041596	Cap, Chip	10nF	K 50V
CN644	24774470	Cap, Chip	47pF	J 50V
CN645	24783330	Cap, Chip	33pF	J 50V
CN646	70041328	Cap, Chip	100nF	Z 25V
CS030	70041596	Cap, Chip	10nF	K 50V
CS031	24815562	Cap, Chip	5600pF	K 50V
CS033	70042146	Cap, Plastic	33nF	J 100V
CS034	24214221	Cap, Ceramic	220pF	K 500V
CS036	70041298	Cap, Electrolytic	1μF	M 50V
CS038	70040530	Cap, Electrolytic	100μF	M 16V
CT001	70041328	Cap, Chip	100nF	Z 25V
CT002	70041596	Cap, Chip	10nF	K 50V
CT003	70041648	Cap, Chip	1000pF	J 50V
CT004	70041630	Cap, Chip	1nF	J 50V
CT005	70041596	Cap, Chip	10nF	K 50V
CT006	70041596	Cap, Chip	10nF	K 50V
CT007	70041596	Cap, Chip	10nF	K 50V
CT008	70041713	Cap, Electrolytic	100μF	M 16V
CT009	70042112	Cap, Electrolytic	47μF	M 16V
CT010	24815222	Cap, Chip	2200pF	K 50V
CT011	70041328	Cap, Chip	100nF	Z 25V
CT012	24783130	Cap, Chip	13pF	J 50V
CT013	70042264	Cap, Chip	7pF	D 50V
CT014	70041654	Cap, Chip	10nF	K 25V
CT015	70041654	Cap, Chip	10nF	K 25V
CT016	70041328	Cap, Chip	100nF	Z 25V
CT017	70041328	Cap, Chip	100nF	Z 25V
CT018	70041328	Cap, Chip	100nF	Z 25V
CT020	70040998	Cap, Chip	100nF	Z 25V
CT021	70041648	Cap, Chip	1000pF	J 50V
CT022	70041630	Cap, Chip	1nF	J 50V
CT023	70041037	Cap, Electrolytic	47μF	M 16V
CT024	70041012	Cap, Chip	150pF	J 50V
CT025	70041130	Cap, Chip	470nF	Z 16V
CT026	70041130	Cap, Chip	470nF	Z 16V
CT027	24774101	Cap, Chip	100pF	J 50V
CT028	24774101	Cap, Chip	100pF	J 50V
CT029	70042122	Cap, Electrolytic	1μF	M 50V
CT030	70042122	Cap, Electrolytic	1μF	M 50V
CT031	70041037	Cap, Electrolytic	47μF	M 16V
CT032	70041328	Cap, Chip	100nF	Z 25V
CT034	70041118	Cap, Chip	220pF	J 50V
CT035	70041118	Cap, Chip	220pF	J 50V
CT036	70041629	Cap, Chip	1nF	M 50V
CT037	70041327	Cap, Chip	4pF	C 50V
CT038	70041125	Cap, Chip	22nF	M 25V
CT039	70042129	Cap, Chip	200pF	J 50V
CT040	24774101	Cap, Chip	100pF	J 50V
CT041	24774470	Cap, Chip	47pF	J 50V
CT042	24774470	Cap, Chip	47pF	J 50V
CT044	70041111	Cap, Electrolytic	470μF	M 10V
CT046	70041328	Cap, Chip	100nF	Z 25V
CT047	70040998	Cap, Chip	100nF	Z 25V
CT048	70040998	Cap, Chip	100nF	Z 25V
CT049	70041596	Cap, Chip	10nF	K 50V
CT050	70041328	Cap, Chip	100nF	Z 25V
CT051	70041328	Cap, Chip	100nF	Z 25V
CT052	70041328	Cap, Chip	100nF	Z 25V
CT053	70041066	Cap	0. 1F	Z
CT054	70041051	Cap, Electrolytic	47μF	M 16V
CT055	70040412	Cap, Electrolytic	220μF	M 10V
CT060	70040530	Cap, Electrolytic	100μF	M 16V
CT070	70041596	Cap, Chip	10nF	K 50V
CV001	70040994	Cap, Chip	390pF	J 50V
CV003	70040493	Cap, Chip	10nF	K 50V
CV004	70041657	Cap, Chip	22nF	K 25V
CV005	24203100	Cap, Electrolytic	10μF	M 16V
CV006	70041657	Cap, Chip	22nF	K 25V
CV007	70041296	Cap, Electrolytic	10μF	M 6. 3V
CV008	70041318	Cap, Electrolytic	100μF	M 6. 3V
CV009	70041328	Cap, Chip	100nF	Z 25V
CV010	70042121	Cap, Electrolytic	10μF	M 6. 3V
CV011	70041723	Cap, Chip	8pF	D 50V
CV013	24774680	Cap, Chip	68pF	J 50V
CV016	24636010	Cap, Electrolytic	1μF	M 50V
CV022	70041657	Cap, Chip	22nF	K 25V
CV025	70041657	Cap, Chip	22nF	K 25V
CV029	70042101	Cap, Electrolytic	1μF	M 50V
CV030	70041704	Cap, Chip	47nF	K 10V
CV032	70041624	Cap, Chip	470nF	Z
CV034	70041704	Cap, Chip	47nF	K 10V
CV035	70042122	Cap, Electrolytic	1μF	M 50V
CV036	70041657	Cap, Chip	22nF	K 25V
CV037	70042122	Cap, Electrolytic	1μF	M 50V
CV038	70042127	Cap, Ceramic	22nF	Z 25V
CV039	70042116	Cap, Chip	47nF	K 25V
CV041	70042242	Cap, Chip	27nF	K
CV042	70041654	Cap, Chip	10nF	K 25V
CV044	70041640	Cap, Electrolytic	10μF	M 50V
CV045	70041328	Cap, Chip	100nF	Z 25V
CV046	70041328	Cap, Chip	100nF	Z 25V
CV047	24774560	Cap, Chip	56pF	J 50V
CV048	70041871	Cap, Chip	200pF	J 50V
CV049	70041529	Cap, Chip	1μF	Z 16V
CV053	24781300	Cap, Chip	30pF	J 50V
CV062	70041631	Cap, Chip	22nF	K 50V
CV063	70042160	Cap, Electrolytic	100μF	M 6. 3V
CV064	70041328	Cap, Chip	100nF	Z 25V
CV065	70041657	Cap, Chip	22nF	K 25V
CV067	70042122	Cap, Electrolytic	1μF	M 50V
CV069	70042122	Cap, Electrolytic	1μF	M 50V
CV071	70041654	Cap, Chip	10nF	K 25V
CV074	70041328	Cap, Chip	100nF	Z 25V
CV076	70041328	Cap, Chip	100nF	Z 25V
CV077	70041514	Cap, Electrolytic	100μF	M 16V
CV078	70041328	Cap, Chip	100nF	Z 25V
CV079	70042122	Cap, Electrolytic	1μF	M 50V
CV082	24781390	Cap, Chip	39pF	J 50V
CV083	70040268	Cap, Ceramic, Chip	22nF	K 25V
CV103	70041654	Cap, Chip	10nF	K 25V
CV107	70041328	Cap, Chip	100nF	Z 25V
CV121	70042121	Cap, Electrolytic	10μF	M 6. 3V
CV122	70041328	Cap, Chip	100nF	Z 25V
CV123	70041318	Cap, Electrolytic	100μF	M 6. 3V
CV125	70041641	Cap, Electrolytic	10μF	M 50V
CV126	70041328	Cap, Chip	100nF	Z 25V
CV127	70041522	Cap, Electrolytic	47μF	M 10V
CV128	70041522	Cap, Electrolytic	47μF	M 10V
CV135	70041328	Cap, Chip	100nF	Z 25V
CV139	70042160	Cap, Electrolytic	100μF	M 6. 3V
CV140	70041328	Cap, Chip	100nF	Z 25V
CV151	24783180	Cap, Chip	180pF	J 50V
CV152	70041323	Cap, Chip	8pF	C 50V
CV153	70041923	Cap, Chip	75pF	J 50V
CV154	24774180	Cap, Chip	18pF	J 50V
CV161	24774101	Cap, Chip	100pF	J 50V
CV163	70042128	Cap, Chip	2. 2nF	J 50V
CV164	70041318	Cap, Electrolytic	100μF	M 6. 3V
CV165	24774101	Cap, Chip	100pF	J 50V
CV166	70042122	Cap, Electrolytic	1μF	M 50V
CV167	70041328	Cap, Chip	100nF	Z 25V
CV168	70042159	Cap, Electrolytic	100μF	M 6. 3V
CV169	70041298	Cap, Electrolytic	1μF	M 50V
CV170	70041699	Cap, Chip	100nF	K
CV171	24092293	Cap, Chip	0. 1μF	Z 25V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CV182	70041631	Cap, Chip	22nF	K 50V
CV184	24774680	Cap, Chip	68pF	J 50V
CV189	70041631	Cap, Chip	22nF	K 50V
CV200	70041328	Cap, Chip	100nF	Z 25V
CV201	70041713	Cap, Electrolytic	100μF	M 16V
CV206	70041654	Cap, Chip	10nF	K 25V
CV212	70041654	Cap, Chip	10nF	K 25V
CV213	24774220	Cap, Chip	22pF	J 50V
CV214	70042117	Cap, Chip	130pF	J 50V
CV215	70041326	Cap, Chip	56pF	J 50V
CV219	70041328	Cap, Chip	100nF	Z 25V
CV222	24285103	Cap, Chip	0.01μF	K 50V
CV224	70041654	Cap, Chip	10nF	K 25V
CV226	70042130	Cap, Chip	51pF	J 50V
CV240	70041514	Cap, Electrolytic	100μF	M 16V
CV241	70041328	Cap, Chip	100nF	Z 25V
CV242	70042271	Cap	27pF	J 50V
CV244	70042185	Cap, Chip	1.5nF	J 50V
CV246	70042118	Cap, Chip	15pF	J 50V
CV247	24783181	Cap, Chip	180pF	J 50V
CV248	24774150	Cap, Chip	15pF	J 50V
CV249	24783180	Cap, Chip	180pF	J 50V
CV251	70041657	Cap, Chip	22nF	K 25V
CV252	70041326	Cap, Chip	56pF	J 50V
CV254	70041328	Cap, Chip	100nF	Z 25V
CW001	24794101	Cap, Electrolytic	100μF	M 16V
CW005	24797100	Cap, Electrolytic	10μF	M 50V
CW007	70042116	Cap, Chip	47nF	K 25V
CW025	70040738	Cap, Electrolytic	4.7μF	25V
CY001	24783151	Cap, Chip	150pF	J 50V
CY002	70041530	Cap, Chip	330nF	Z 16V
CY003	70041114	Cap, Ceramic	33nF	K 50V
CY004	70041704	Cap, Chip	47nF	K 10V
CY010	24815222	Cap, Chip	2200pF	K 50V
CZ005	70042147	Cap, Chip	100pF	K
CZ013	70041125	Cap, Chip	22nF	M 25V
CZ014	70041241	Cap, Electrolytic	47μF	M 16V
CZ015	70041500	Cap, Electrolytic	47μF	M 50V
CZ021	70041657	Cap, Chip	22nF	K 25V
CZ022	70040493	Cap, Chip	10nF	K 50V
CZ030	24794101	Cap, Electrolytic	100μF	M 16V
CZ033	24794101	Cap, Electrolytic	100μF	M 16V
RV002	24774479	Cap, Chip	4.7pF	
JV024	70042126	Cap, Ceramic	10nF	M 16V
PT001	24093962	Cap, Variable	20pF	
		- RESISTORS -		
CV002	24872102	Res, Chip	1kΩ	J 1/16W
CV055	24872330	Res, Chip	33Ω	J 1/16W
CV072	70040842	Res, Carbon	470Ω	J
RG030	24872102	Res, Chip	1kΩ	J 1/16W
RG031	24872103	Res, Chip	10kΩ	J 1/16W
RG032	24872821	Res, Chip	820Ω	J 1/16W
RG033	24871821	Res, Chip	820Ω	J 1/8W
RG034	24872682	Res, Chip	6.8kΩ	J 1/16W
RG035	24871472	Res, Chip	4.7kΩ	J 1/8W
RG036	70040135	Res, Chip	12kΩ	J 1/8W
RG037	24871822	Res, Chip	8.2kΩ	J 1/8W
RG105	70041096	Chip Jumper		
RG106	70041096	Chip Jumper		
RN431	24872101	Res, Chip	100Ω	J 1/16W
RN436	70040920	Res, Carbon	1.5kΩ	J 1/4W
RN437	24872152	Res, Chip	1.5kΩ	J 1/16W
RN439	70041919	Res, Chip	4.7Ω	J 1/10W
RN440	24872563	Res, Chip	56kΩ	J 1/16W
⚠RN441	70041671	Res, Fusible	18Ω	J 0.3W
RN640	24872392	Res, Chip	3.9kΩ	J 1/16W
RN641	24871101	Res, Chip	100Ω	J 1/8W
RN642	24871471	Res, Chip	470Ω	J 1/8W
RN643	24872561	Res, Chip	560Ω	J 1/16W
RN644	24872122	Res, Chip	1.2kΩ	J 1/16W
RN645	24872103	Res, Chip	10kΩ	J 1/16W
RN646	24872392	Res, Chip	3.9kΩ	J 1/16W
RS030	70041919	Res, Chip	4.7Ω	J 1/10W
RS031	24872472	Res, Chip	4.7kΩ	J 1/16W
RS036	24872103	Res, Chip	10kΩ	J 1/16W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
RS039	24872472	Res, Chip	4.7kΩ	J 1/16W
RS040	24872472	Res, Chip	4.7kΩ	J 1/16W
RS042	70040571	Res, Chip	12kΩ	J 1/16W
RS043	70041096	Chip Jumper		
⚠RS045	70041671	Res, Fusible	18Ω	J 0.3W
RS051	24872100	Res, Chip	10Ω	J 1/16W
RT001	24872221	Res, Chip	220Ω	J 1/16W
RT002	70040106	Res, Carbon	10kΩ	J 1/4W
RT003	70042163	Res, Chip	11kΩ	G 1/8W
RT004	70040702	Res, Carbon	12kΩ	J 1/4W
RT005	24871473	Res, Chip	47kΩ	J 1/8W
RT006	24871473	Res, Chip	47kΩ	J 1/8W
RT007	24872103	Res, Chip	10kΩ	J 1/16W
RT008	24871229	Res, Chip	2.2Ω	J 1/8W
RT009	24871229	Res, Chip	2.2Ω	J 1/8W
RT010	24872472	Res, Chip	4.7kΩ	J 1/16W
RT011	24872821	Res, Chip	820Ω	J 1/16W
RT012	24871103	Res, Chip	10kΩ	J 1/8W
RT013	24872472	Res, Chip	4.7kΩ	J 1/16W
RT014	70042025	Res, Carbon	110kΩ	J 1/4W
RT015	24872114	Res, Chip	110kΩ	J 1/16W
RT016	70042031	Res, Carbon	5.1kΩ	J 1/4W
RT017	24871201	Res, Chip	200Ω	J 1/8W
RT018	24871201	Res, Chip	200Ω	J 1/8W
RT019	24871103	Res, Chip	10kΩ	J 1/8W
RT020	24871103	Res, Chip	10kΩ	J 1/8W
RT021	24871102	Res, Chip	1kΩ	J 1/8W
RT022	24872182	Res, Chip	1.8kΩ	J 1/16W
RT023	24872472	Res, Chip	4.7kΩ	J 1/16W
RT024	24872472	Res, Chip	4.7kΩ	J 1/16W
RT025	24872472	Res, Chip	4.7kΩ	J 1/16W
RT026	24872102	Res, Chip	1kΩ	J 1/16W
RT027	70040891	Res, Carbon	470Ω	J 0.2W
RT030	24871472	Res, Chip	4.7kΩ	J 1/8W
RT031	24872821	Res, Chip	820Ω	J 1/16W
RT032	24871562	Res, Chip	5.6kΩ	J 1/8W
RT033	24872562	Res, Chip	5.6kΩ	J 1/16W
RT034	24871273	Res, Chip	27kΩ	J 1/8W
RT035	24871223	Res, Chip	22kΩ	J 1/8W
RT036	24871561	Res, Chip	560Ω	J 1/8W
RT037	24871561	Res, Chip	560Ω	J 1/8W
RT038	24871331	Res, Chip	330Ω	J 1/8W
RT039	24871331	Res, Chip	330Ω	J 1/8W
RT040	70040852	Res, Carbon	10kΩ	J 1/4W
RT041	24872471	Res, Chip	470Ω	J 1/16W
RT042	24871684	Res, Chip	680kΩ	J 1/8W
RT043	24872224	Res, Chip	220kΩ	J 1/16W
RT044	24871105	Res, Chip	1MΩ	J 1/8W
RT045	24872105	Res, Chip	1MΩ	J 1/16W
RT046	24872563	Res, Chip	56kΩ	J 1/16W
RT047	24872182	Res, Chip	1.8kΩ	J 1/16W
RT048	24872182	Res, Chip	1.8kΩ	J 1/16W
RT049	24872563	Res, Chip	56kΩ	J 1/16W
RT052	24871102	Res, Chip	1kΩ	J 1/8W
RT055	70040101	Res, Carbon	680Ω	J
RT058	24872222	Res, Chip	2.2kΩ	J 1/16W
RT059	24872222	Res, Chip	2.2kΩ	J 1/16W
RT063	24872221	Res, Chip	220Ω	J 1/16W
RT064	24872221	Res, Chip	220Ω	J 1/16W
RT065	24872472	Res, Chip	4.7kΩ	J 1/16W
RT066	24872472	Res, Chip	4.7kΩ	J 1/16W
RT067	24871471	Res, Chip	470Ω	J 1/8W
RT068	24872101	Res, Chip	100Ω	J 1/16W
RT069	24872222	Res, Chip	2.2kΩ	J 1/16W
RT072	24872103	Res, Chip	10kΩ	J 1/16W
RT073	24872473	Res, Chip	47kΩ	J 1/16W
RT074	24872303	Res, Chip	30kΩ	J 1/16W
RT075	24872102	Res, Chip	1kΩ	J 1/16W
RT081	24871101	Res, Chip	100Ω	J 1/8W
RT082	24871222	Res, Chip	2.2kΩ	J 1/8W
RT083	24872222	Res, Chip	2.2kΩ	J 1/16W
RT084	24872182	Res, Chip	1.8kΩ	J 1/16W
RT085	24872182	Res, Chip	1.8kΩ	J 1/16W
RT086	24871222	Res, Chip	2.2kΩ	J 1/8W
RT088	24871561	Res, Chip	560Ω	J 1/8W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
⚠RT089	70040122	Res, Carbon	1Ω	J 0.3W
RT090	70040099	Res, Carbon	6.8kΩ	J 1/4W
RT091	24872102	Res, Chip	1kΩ	J 1/16W
RV001	24872681	Res, Chip	680Ω	J 1/16W
RV005	24872362	Res, Chip	3.6kΩ	J 1/16W
RV006	24872392	Res, Chip	3.9kΩ	J 1/16W
RV007	24872222	Res, Chip	2.2kΩ	J 1/16W
RV008	24872332	Res, Chip	3.3kΩ	J 1/16W
RV010	24871102	Res, Chip	1kΩ	J 1/8W
RV011	24872101	Res, Chip	100Ω	J 1/16W
RV013	70040356	Res, Chip	1.8kΩ	J 1/16W
RV020	24871102	Res, Chip	1kΩ	J 1/8W
RV021	70040391	Chip Jumper		
RV022	24872472	Res, Chip	4.7kΩ	J 1/16W
RV023	24872472	Res, Chip	4.7kΩ	J 1/16W
RV026	70040118	Res, Carbon	4.7kΩ	J 1/4W
RV027	24871102	Res, Chip	1kΩ	J 1/8W
RV028	24872182	Res, Chip	1.8kΩ	J 1/16W
RV029	24871822	Res, Chip	8.2kΩ	J 1/8W
RV036	24872102	Res, Chip	1kΩ	J 1/16W
RV041	24871103	Res, Chip	10kΩ	J 1/8W
RV044	24872202	Res, Chip	2kΩ	J 1/16W
RV045	24872152	Res, Chip	1.5kΩ	J 1/16W
RV046	24872512	Res, Chip	5.1kΩ	J 1/16W
RV047	24872102	Res, Chip	1kΩ	J 1/16W
RV048	70041096	Chip Jumper		
RV049	24871272	Res, Chip	2.7kΩ	J 1/8W
RV050	70041096	Chip Jumper		
RV051	24872471	Res, Chip	470Ω	J 1/16W
RV053	24872101	Res, Chip	100Ω	J 1/16W
RV054	70041096	Chip Jumper		
RV055	24872102	Res, Chip	1kΩ	J 1/16W
RV071	70041096	Chip Jumper		
RV073	70041096	Chip Jumper		
RV074	70041093	Chip Jumper		
RV075	24872472	Res, Chip	4.7kΩ	J 1/16W
RV076	24872823	Res, Chip	82kΩ	J 1/16W
RV077	24872102	Res, Chip	1kΩ	J 1/16W
RV082	70040391	Chip Jumper		
RV109	24872472	Res, Chip	4.7kΩ	J 1/16W
RV110	24872472	Res, Chip	4.7kΩ	J 1/16W
RV112	24871472	Res, Chip	4.7kΩ	J 1/8W
RV121	24872104	Res, Chip	100kΩ	J 1/16W
RV122	24871332	Res, Chip	3.3kΩ	J 1/8W
RV123	24872392	Res, Chip	3.9kΩ	J 1/16W
RV124	24872681	Res, Chip	680Ω	J 1/16W
RV125	24872102	Res, Chip	1kΩ	J 1/16W
RV126	24872272	Res, Chip	2.7kΩ	J 1/16W
RV127	70041096	Chip Jumper		
RV128	24872682	Res, Chip	6.8kΩ	J 1/16W
RV129	24872183	Res, Chip	18kΩ	J 1/16W
RV130	24872222	Res, Chip	2.2kΩ	J 1/16W
RV131	24872102	Res, Chip	1kΩ	J 1/16W
RV132	70040358	Res, Chip	10kΩ	J 1/16W
RV135	70040891	Res, Carbon	470Ω	J 0.2W
RV137	24871332	Res, Chip	3.3kΩ	J 1/8W
RV138	24872911	Res, Chip	910Ω	J 1/16W
RV139	24872562	Res, Chip	5.6kΩ	J 1/16W
RV140	24872331	Res, Chip	330Ω	J 1/16W
RV141	24872182	Res, Chip	1.8kΩ	J 1/16W
RV142	24872102	Res, Chip	1kΩ	J 1/16W
RV143	24872103	Res, Chip	10kΩ	J 1/16W
RV144	70040839	Res, Carbon	100Ω	J 1/4W
RV145	24872182	Res, Chip	1.8kΩ	J 1/16W
RV146	24872102	Res, Chip	1kΩ	J 1/16W
RV147	24872682	Res, Chip	6.8kΩ	J 1/16W
RV148	24872182	Res, Chip	1.8kΩ	J 1/16W
RV150	24872102	Res, Chip	1kΩ	J 1/16W
RV151	24871102	Res, Chip	1kΩ	J 1/8W
RV154	24872102	Res, Chip	1kΩ	J 1/16W
RV160	70040371	Res, Chip	2.2kΩ	J 1/16W
RV161	70042138	Res, Chip	130kΩ	F
RV163	24872474	Res, Chip	470kΩ	J 1/16W
RV164	24872561	Res, Chip	560Ω	J 1/16W
RV165	24872561	Res, Chip	560Ω	J 1/16W
RV166	24872474	Res, Chip	470kΩ	J 1/16W
RV167	24871272	Res, Chip	2.7kΩ	J 1/8W
RV168	24871682	Res, Chip	6.8kΩ	J 1/8W
RV169	24871471	Res, Chip	470Ω	J 1/8W
RV170	24872472	Res, Chip	4.7kΩ	J 1/16W
RV171	24872223	Res, Chip	22kΩ	J 1/16W
RV181	24872222	Res, Chip	2.2kΩ	J 1/16W
RV182	70041919	Res, Chip	4.7Ω	J 1/10W
RV183	24871472	Res, Chip	4.7kΩ	J 1/8W
RV184	24872123	Res, Chip	12kΩ	J 1/16W
RV185	24872223	Res, Chip	22kΩ	J 1/16W
RV186	24872473	Res, Chip	47kΩ	J 1/16W
RV188	24872102	Res, Chip	1kΩ	J 1/16W
RV189	24872124	Res, Chip	120kΩ	J 1/16W
RV190	24872104	Res, Chip	100kΩ	J 1/16W
RV191	24872683	Res, Chip	68kΩ	J 1/16W
RV194	24872564	Res, Chip	560kΩ	J 1/16W
RV200	24872102	Res, Chip	1kΩ	J 1/16W
RV201	24872102	Res, Chip	1kΩ	J 1/16W
RV202	24872102	Res, Chip	1kΩ	J 1/16W
RV204	24871183	Res, Chip	18kΩ	J 1/8W
RV205	24872103	Res, Chip	10kΩ	J 1/16W
RV206	24872752	Res, Chip	7.5kΩ	J 1/16W
RV213	24872222	Res, Chip	2.2kΩ	J 1/16W
RV214	24872222	Res, Chip	2.2kΩ	J 1/16W
RV215	24872431	Res, Chip	430Ω	J 1/16W
RV221	24872183	Res, Chip	18kΩ	J 1/16W
RV222	24872103	Res, Chip	10kΩ	J 1/16W
RV223	24872122	Res, Chip	1.2kΩ	J 1/16W
RV224	24872821	Res, Chip	820Ω	J 1/16W
RV225	24871152	Res, Chip	1.5kΩ	J 1/8W
RV227	24872392	Res, Chip	3.9kΩ	J 1/16W
RV241	24871392	Res, Chip	3.9kΩ	J 1/8W
RV242	70040391	Chip Jumper		
RV243	24872562	Res, Chip	5.6kΩ	J 1/16W
RV244	24872561	Res, Chip	560Ω	J 1/16W
RV245	24872102	Res, Chip	1kΩ	J 1/16W
RV247	24872561	Res, Chip	560Ω	J 1/16W
RV248	70041137	Res, Chip	3.9kΩ	J 1/10W
RV249	24872471	Res, Chip	470Ω	J 1/16W
RV250	24872431	Res, Chip	430Ω	J 1/16W
RV251	24871132	Res, Chip	1.3kΩ	J 1/8W
RV252	24872152	Res, Chip	1.5kΩ	J 1/16W
RV253	24872391	Res, Chip	390Ω	J 1/16W
RV254	24872471	Res, Chip	470Ω	J 1/16W
RV255	24872561	Res, Chip	560Ω	J 1/16W
RV256	24871561	Res, Chip	560Ω	J 1/8W
RV257	24872102	Res, Chip	1kΩ	J 1/16W
RW001	24871472	Res, Chip	4.7kΩ	J 1/8W
RW002	24871122	Res, Chip	1.2kΩ	J 1/8W
RW005	24871223	Res, Chip	22kΩ	J 1/8W
RW008	70040896	Res, Carbon	3.3kΩ	J 1/4W
RW009	70040896	Res, Carbon	3.3kΩ	J 1/4W
⚠RW012	70041074	Res, Fusible	27Ω	J 0.3W
RW017	24871472	Res, Chip	4.7kΩ	J 1/8W
RW019	24871681	Res, Chip	680Ω	J 1/8W
RW020	24871681	Res, Chip	680Ω	J 1/8W
⚠RW021	70041672	Res, Fusible	5.6Ω	J 0.3W
RW024	24871273	Res, Chip	27kΩ	J 1/8W
RW025	24871392	Res, Chip	3.9kΩ	J 1/8W
RW029	70042148	Res, Oxide Metal	0.51Ω	
⚠RW030	70041116	Res, Fusible	39Ω	J 0.3W
RW031	70042265	Res	560	J
RW032	24871103	Res, Chip	10kΩ	J 1/8W
RW033	70040564	Res, Chip	3.3kΩ	J 1/8W
RY001	24872222	Res, Chip	2.2kΩ	J 1/16W
RY002	24872105	Res, Chip	1MΩ	J 1/16W
RY003	24872125	Res, Chip	1.2MΩ	J 1/16W
RY004	24872682	Res, Chip	6.8kΩ	J 1/16W
RY006	70040751	Res, Chip	100kΩ	J 1/8W
RY007	70041096	Chip Jumper		
RY009	24872682	Res, Chip	6.8kΩ	J 1/16W
RY010	24872125	Res, Chip	1.2MΩ	J 1/16W
RZ007	70041096	Chip Jumper		
RZ008	70041096	Chip Jumper		

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
RZ015	70040961	Res, Carbon	1kΩ	J 1/4W
RZ019	24872563	Res, Chip	56kΩ	J 1/16W
RZ020	24871222	Res, Chip	2.2kΩ	J 1/8W
RZ030	24872122	Res, Chip	1.2kΩ	J 1/16W
RZ031	24872102	Res, Chip	1kΩ	J 1/16W
RZ035	70041096	Chip Jumper		
RZ037	70040686	Res, Chip	1.5kΩ	J 1/8W
RZ039	70041096	Chip Jumper		
RZ050	24872681	Res, Chip	680Ω	J 1/16W
RZ051	70041094	Res, Chip	130Ω	J
RZ052	24871471	Res, Chip	470Ω	J 1/8W
RZ053	24872331	Res, Chip	330Ω	J 1/16W
RZ054	24871102	Res, Chip	1kΩ	J 1/8W
RZ055	70040133	Res, Chip	1kΩ	J 1/8W
RZ056	70041096	Chip Jumper		
RZ057	24871472	Res, Chip	4.7kΩ	J 1/8W
RZ060	24872270	Res, Chip	27Ω	J 1/16W
RZ065	70042266	Res, Carbon	100Ω	J 0.43W
RZ066	70041658	Res, Carbon	82Ω	J 1/4W
RZ070	70040391	Chip Jumper		
RZ071	70040391	Chip Jumper		
JG036	70041096	Chip Jumper		
JG037	70040391	Chip Jumper		
JG101	70040841	Res, Carbon	220Ω	J 1/4W
JG102	70040841	Res, Carbon	220Ω	J 1/4W
JG107	70041093	Chip Jumper		
JN401	70041096	Chip Jumper		
JN603	70041093	Chip Jumper		
JS031	70041093	Chip Jumper		
JS032	70041093	Chip Jumper		
JS036	70041093	Chip Jumper		
JS037	70041093	Chip Jumper		
JS043	70041093	Chip Jumper		
JS050	70041093	Chip Jumper		
JS051	70041093	Chip Jumper		
JS109	70041093	Chip Jumper		
JT001	70041093	Chip Jumper		
JT006	70041093	Chip Jumper		
JT018	70041093	Chip Jumper		
JT019	70041093	Chip Jumper		
JT020	70041093	Chip Jumper		
JT023	70041093	Chip Jumper		
JT031	70041093	Chip Jumper		
JT033	70041093	Chip Jumper		
JT035	70040103	Res, Carbon	1kΩ	J 1/4W
JT036	70041093	Chip Jumper		
JT038	70041096	Chip Jumper		
JT051	70041093	Chip Jumper		
JT056	70041096	Chip Jumper		
JT066	70041093	Chip Jumper		
JT079	70041093	Chip Jumper		
JT080	70041096	Chip Jumper		
JT082	70041093	Chip Jumper		
JT083	70041093	Chip Jumper		
JT084	70041093	Chip Jumper		
JT086	70041093	Chip Jumper		
JT087	70041093	Chip Jumper		
JT089	70041093	Chip Jumper		
JT092	70041093	Chip Jumper		
JT097	70041093	Chip Jumper		
JT102	70041093	Chip Jumper		
JT108	70041093	Chip Jumper		
JT112	70041093	Chip Jumper		
JT122	70041093	Chip Jumper		
JT123	24872681	Res, Chip	680Ω	J 1/16W
JT124	70041093	Chip Jumper		
JT128	70041093	Chip Jumper		
JT129	70041093	Chip Jumper		
JT130	70041093	Chip Jumper		
JT134	70041093	Chip Jumper		
JT136	70041093	Chip Jumper		
JT148	70041093	Chip Jumper		
JT161	70041093	Chip Jumper		
JT171	70041096	Chip Jumper		
JT174	70041096	Chip Jumper		

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
JT175	70041096	Chip Jumper		
JT176	70041096	Chip Jumper		
JT177	70041096	Chip Jumper		
JT179	70041096	Chip Jumper		
JT190	70041093	Chip Jumper		
JT191	70041093	Chip Jumper		
JT192	70041093	Chip Jumper		
JT193	70041093	Chip Jumper		
JT194	70041093	Chip Jumper		
JT203	70041093	Chip Jumper		
JT206	70041096	Chip Jumper		
JT209	70041096	Chip Jumper		
JT212	70041093	Chip Jumper		
JT215	70041096	Chip Jumper		
JT217	70041093	Chip Jumper		
JV001	70041093	Chip Jumper		
JV023	70041093	Chip Jumper		
JV037	70041093	Chip Jumper		
JV043	70041093	Chip Jumper		
JV056	70041093	Chip Jumper		
JV060	70041093	Chip Jumper		
JV061	70041093	Chip Jumper		
JV062	70041093	Chip Jumper		
JV066	70041093	Chip Jumper		
JV069	70041093	Chip Jumper		
JV070	70041093	Chip Jumper		
JV071	70041093	Chip Jumper		
JV074	70041093	Chip Jumper		
JV075	70041093	Chip Jumper		
JV076	70041093	Chip Jumper		
JV078	70041093	Chip Jumper		
JV089	70041093	Chip Jumper		
JV090	70041093	Chip Jumper		
JV094	70041093	Chip Jumper		
JV099	70040849	Res, Carbon	2.2kΩ	J
JV101	70041093	Chip Jumper		
JV117	70041096	Chip Jumper		
JV123	70041093	Chip Jumper		
JV126	70041096	Chip Jumper		
JV129	70041096	Chip Jumper		
JV130	70041096	Chip Jumper		
JV131	70041096	Chip Jumper		
JV140	70041093	Chip Jumper		
JV145	70041093	Chip Jumper		
JV155	70041093	Chip Jumper		
JV156	70041093	Chip Jumper		
JV158	70041096	Chip Jumper		
JV159	70041093	Chip Jumper		
JV162	70041093	Chip Jumper		
JV166	70040391	Chip Jumper		
JV167	70040391	Chip Jumper		
JW009	70041093	Chip Jumper		
JW014	70041093	Chip Jumper		
JW015	70041093	Chip Jumper		
JW019	70041093	Chip Jumper		
JW026	70041093	Chip Jumper		
JW027	70041093	Chip Jumper		
JW041	70041093	Chip Jumper		
JY006	70041093	Chip Jumper		
JY007	70041093	Chip Jumper		
JY008	70040568	Res, Chip	220Ω	J 1/8W
JY009	70041093	Chip Jumper		
JY010	70041093	Chip Jumper		
JY011	70040568	Res, Chip	220Ω	J 1/8W
JY012	70041093	Chip Jumper		
JZ007	70041093	Chip Jumper		
JZ008	70041093	Chip Jumper		
JZ013	70042245	Res, Carbon	120Ω	J 1/4W
JZ015	70041093	Chip Jumper		
JZ017	70041093	Chip Jumper		
JZ020	70041093	Chip Jumper		
JZ022	70041096	Chip Jumper		
JZ030	70041093	Chip Jumper		
JZ040	70041093	Chip Jumper		
JZ041	70041093	Chip Jumper		

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
JZ042	70041093	Chip Jumper		
JZ045	70041093	Chip Jumper		
JZ048	70040841	Res, Carbon	220Ω	J 1/4W
JZ049	70040841	Res, Carbon	220Ω	J 1/4W
JZ053	70041093	Chip Jumper		
JZ062	70041096	Chip Jumper		
		- MISCELLANEOUS -		
0010M	70011844	Tuner		
0020M	70011845	IF Module		
⚠0060M	70051894	Back Panel		
BS001	23164506	Plug 2P		
BT001	70011830	Connector		
FZ050	70012166	Filter	5.74MHz	
FZ051	70011260	Filter		
GT001	70011828	Hall Sensor	HW300B	
GT003	70011793	Photo Interrupter	GP1S562	
GT004	70011793	Photo Interrupter	GP1S562	
GT02A	70051136	LED Holder		
MT001	70031317	Stator		
QT001	70012188	Crystal	17.734MHz	
QT002	70010116	Crystal, 32kHz		
QT003	70011861	Crystal	16MHz	
QV028	70011960	Crystal	4.433619MHz	
ST001	70011826	Switch, Push		
■0030M	70095099	P C Board Assy	Terminal	
		- INTEGRATED CIRCUITS -		
IN001	70012660	IC	MSP3400C	
IN002	70012439	IC	TA75557P	
IN003	70012439	IC	TA75557P	
IN005	70011896	IC	BA3129F	
IN006	70011806	IC	BA7755	
IN007	70012542	IC	TA8863BF	
IX101	70011881	IC	STV6400	
		- TRANSISTORS -		
TN001	A6004040	Transistor, Chip	RN1404	
TN002	70010331	Transistor	BC847B	
TN003	70010331	Transistor	BC847B	
TN004	70010331	Transistor	BC847B	
TN300	A6541130	Transistor, Chip	2SA1162-Y	
TN301	A6004020	Transistor, Chip	RN1402	
TN302	A6541130	Transistor, Chip	2SA1162-Y	
		- DIODES -		
DN001	70010342	Diode, Chip	LL4148	
DN002	70010965	Diode	LL4448	
DN003	70010965	Diode	LL4448	
DN150	70010342	Diode, Chip	LL4148	
DN151	70010342	Diode, Chip	LL4148	
DN300	70010340	Diode	1SS181	
DX001	70010342	Diode, Chip	LL4148	
		- COILS -		
LN001	70011771	Coil, Peaking		
LN003	70012095	Coil, Peaking		
LN004	70011771	Coil, Peaking		
LN300	70011546	Coil, Peaking		
LN301	23237729	Coil, Peaking	TRF4822AP	
LX101	70011848	Coil, Peaking		
LX102	70011848	Coil, Peaking		
LX103	70011772	Coil, Peaking		
LX105	70012431	Coil, Chip		
		- CAPACITORS -		
CN090	70041328	Cap, Chip	100nF	Z 25V
CN096	70041530	Cap, Chip	330nF	Z 16V
CN097	70041530	Cap, Chip	330nF	Z 16V
CN098	70041530	Cap, Chip	330nF	Z 16V
CN099	70041530	Cap, Chip	330nF	Z 16V
CN100	70040994	Cap, Chip	390pF	J 50V
CN101	70040994	Cap, Chip	390pF	J 50V
CN102	24815222	Cap, Chip	2200pF	K 50V
CN103	24815222	Cap, Chip	2200pF	K 50V
CN104	24815222	Cap, Chip	2200pF	K 50V
CN105	24815222	Cap, Chip	2200pF	K 50V
CN106	70041649	Cap, Chip	0.68µF	Z 50V
CN107	70041649	Cap, Chip	0.68µF	Z 50V
CN111	70041530	Cap, Chip	330nF	Z 16V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CN112	70041530	Cap, Chip	330nF	Z 16V
CN113	70041042	Cap, Electrolytic	10µF	X
CN114	70041596	Cap, Chip	10nF	K 50V
CN115	24633220	Cap, Electrolytic	22µF	M 16V
CN120	70041889	Cap, Electrolytic	220µF	M 16V
CN121	70041596	Cap, Chip	10nF	K 50V
CN124	70042257	Cap, Chip	5pF	C
CN125	70042257	Cap, Chip	5pF	C
CN126	70041596	Cap, Chip	10nF	K 50V
CN127	70041596	Cap, Chip	10nF	K 50V
CN128	70041596	Cap, Chip	10nF	K 50V
CN129	70041596	Cap, Chip	10nF	K 50V
CN130	24633220	Cap, Electrolytic	22µF	M 16V
CN131	70041130	Cap, Chip	470nF	Z 16V
CN132	70041042	Cap, Electrolytic	10µF	X
CN134	70041328	Cap, Chip	100nF	Z 25V
CN135	70041530	Cap, Chip	330nF	Z 16V
CN136	70041530	Cap, Chip	330nF	Z 16V
CN137	70041530	Cap, Chip	330nF	Z 16V
CN138	70041530	Cap, Chip	330nF	Z 16V
CN139	70041706	Cap, Chip	470pF	J 50V
CN140	70041706	Cap, Chip	470pF	J 50V
CN141	70041294	Cap, Electrolytic	33µF	M 16V
CN142	70041328	Cap, Chip	100nF	Z 25V
CN143	70041042	Cap, Electrolytic	10µF	X
CN144	70041596	Cap, Chip	10nF	K 50V
CN145	24633220	Cap, Electrolytic	22µF	M 16V
CN146	70041042	Cap, Electrolytic	10µF	X
CN147	70041530	Cap, Chip	330nF	Z 16V
CN148	70041530	Cap, Chip	330nF	Z 16V
CN150	70041115	Cap, Chip	150pF	K 50V
CN151	70041306	Cap, Electrolytic	10µF	M 16V
CN152	70041306	Cap, Electrolytic	10µF	M 16V
CN153	70041115	Cap, Chip	150pF	K 50V
CN154	70041051	Cap, Electrolytic	47µF	M 16V
CN155	70041328	Cap, Chip	100nF	Z 25V
CN156	70041051	Cap, Electrolytic	47µF	M 16V
CN161	24815122	Cap, Chip	1200pF	K 50V
CN162	70041649	Cap, Chip	0.68µF	Z 50V
CN163	24794470	Cap, Electrolytic	47µF	M 16V
CN165	24815122	Cap, Chip	1200pF	K 50V
CN181	24815122	Cap, Chip	1200pF	K 50V
CN182	24794470	Cap, Electrolytic	47µF	M 16V
CN184	70041933	Cap, Chip	1.2nF	K 50V
CN185	24814103	Cap, Chip	0.01µF	Z 50V
CN186	24794101	Cap, Electrolytic	100µF	M 16V
CN190	24203100	Cap, Electrolytic	10µF	M 16V
CN191	24203100	Cap, Electrolytic	10µF	M 16V
CN303	24206478	Cap, Electrolytic	0.47µF	M 50V
CN304	24206478	Cap, Electrolytic	0.47µF	M 50V
CN305	24815332	Cap, Chip	3300pF	K 50V
CN306	24815332	Cap, Chip	3300pF	K 50V
CN307	24630852	Cap, Electrolytic	22µF	M 16V
CN308	70042120	Cap, Electrolytic	330µF	M 6.3V
CN309	24203100	Cap, Electrolytic	10µF	M 16V
CN310	24203100	Cap, Electrolytic	10µF	M 16V
CN311	24591103	Cap, Plastic	0.01µF	J 50V
CN312	24203100	Cap, Electrolytic	10µF	M 16V
CN313	24591103	Cap, Plastic	0.01µF	J 50V
CN314	24591103	Cap, Plastic	0.01µF	J 50V
CN315	70040721	Cap, Electrolytic	22µF	M 16V
CN316	70040721	Cap, Electrolytic	22µF	M 16V
CN319	70041596	Cap, Chip	10nF	K 50V
CN320	70042120	Cap, Electrolytic	330µF	M 6.3V
CN321	70041596	Cap, Chip	10nF	K 50V
CN322	70041578	Cap, Electrolytic	220nF	M 50V
CN323	70042005	Cap, Chip	200pF	J 50V
CN324	70041932	Cap, Chip	150nF	K
CN325	70041298	Cap, Electrolytic	1µF	M 50V
CN326	70041269	Cap, Chip	220pF	J 50V
CN327	24203100	Cap, Electrolytic	10µF	M 16V
CN328	24591103	Cap, Plastic	0.01µF	J 50V
CN329	70041042	Cap, Electrolytic	10µF	X
CN330	24203100	Cap, Electrolytic	10µF	M 16V
CN331	70040493	Cap, Chip	10nF	K 50V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CN332	24203100	Cap, Electrolytic	10μF	M 16V
CN333	24783101	Cap, Chip	100pF	J 50V
CN334	70040248	Cap, Ceramic, Chip	470pF	J 50V
CN335	70041300	Cap, Electrolytic	0.47μF	M 50V
CN336	70041877	Cap, Chip	1.8nF	K 50V
CN338	24815153	Cap, Chip	0.015μF	K 50V
CN339	24815153	Cap, Chip	0.015μF	K 50V
CN340	70040738	Cap, Electrolytic	4.7μF	25V
CN341	70041328	Cap, Chip	100nF	Z 25V
CN342	24783101	Cap, Chip	100pF	J 50V
CN343	24783101	Cap, Chip	100pF	J 50V
CN344	70042005	Cap, Chip	200pF	J 50V
CN345	70041051	Cap, Electrolytic	47μF	M 16V
CN346	24633220	Cap, Electrolytic	22μF	M 16V
CN347	70040268	Cap, Ceramic, Chip	22nF	K 25V
CN350	70041649	Cap, Chip	0.68μF	Z 50V
CN351	70041002	Cap, Chip	680pF	J 50V
CN355	24203100	Cap, Electrolytic	10μF	M 16V
CN356	70041649	Cap, Chip	0.68μF	Z 50V
CN357	70041649	Cap, Chip	0.68μF	Z 50V
CN360	70041649	Cap, Chip	0.68μF	Z 50V
CN361	70041649	Cap, Chip	0.68μF	Z 50V
CN370	70041649	Cap, Chip	0.68μF	Z 50V
CN371	70041649	Cap, Chip	0.68μF	Z 50V
CN375	24814103	Cap, Chip	0.01μF	Z 50V
CN376	24814103	Cap, Chip	0.01μF	Z 50V
CX001	24815561	Cap, Chip	560pF	K 50V
CX002	24815561	Cap, Chip	560pF	K 50V
CX003	24815102	Cap, Chip	1000pF	K 50V
CX004	24815102	Cap, Chip	1000pF	K 50V
CX005	24815561	Cap, Chip	560pF	K 50V
CX006	24815561	Cap, Chip	560pF	K 50V
CX007	24815102	Cap, Chip	1000pF	K 50V
CX008	24815102	Cap, Chip	1000pF	K 50V
CX009	24815561	Cap, Chip	560pF	K 50V
CX016	24815561	Cap, Chip	560pF	K 50V
CX020	70040262	Cap, Ceramic, Chip	100pF	J 50V
CX021	70040262	Cap, Ceramic, Chip	100pF	J 50V
CX022	70040262	Cap, Ceramic, Chip	100pF	J 50V
CX023	70040262	Cap, Ceramic, Chip	100pF	J 50V
CX105	70041328	Cap, Chip	100nF	Z 25V
CX106	70041051	Cap, Electrolytic	47μF	M 16V
CX108	70041328	Cap, Chip	100nF	Z 25V
CX109	70041328	Cap, Chip	100nF	Z 25V
CX110	70041328	Cap, Chip	100nF	Z 25V
CX111	70041328	Cap, Chip	100nF	Z 25V
CX112	70041051	Cap, Electrolytic	47μF	M 16V
CX113	70042010	Cap, Chip	0.1μF	Z
CX114	70041468	Cap, Chip	100nF	Z 25V
CX115	24774470	Cap, Chip	47pF	J 50V
CX116	70040609	Cap, Chip	100pF	J 50V
CX117	70040243	Cap, Ceramic, Chip	82pF	J 50V
CX118	70040243	Cap, Ceramic, Chip	82pF	J 50V
		- RESISTORS -		
RN090	70041783	Res, Chip	5.1kΩ	J 1/10W
RN098	24872123	Res, Chip	12kΩ	J 1/16W
RN099	24872123	Res, Chip	12kΩ	J 1/16W
RN100	24872562	Res, Chip	5.6kΩ	J 1/16W
RN101	24872303	Res, Chip	30kΩ	J 1/16W
RN102	24872303	Res, Chip	30kΩ	J 1/16W
RN103	24872104	Res, Chip	100kΩ	J 1/16W
RN106	70041096	Chip Jumper		
RN107	70041096	Chip Jumper		
RN108	70040336	Res, Chip	68kΩ	J 1/16W
RN109	70041096	Chip Jumper		
RN110	70041096	Chip Jumper		
RN111	70040358	Res, Chip	10kΩ	J 1/16W
RN112	24872221	Res, Chip	220Ω	J 1/16W
RN113	70040339	Res, Chip	330Ω	J 1/16W
RN114	24872101	Res, Chip	100Ω	J 1/16W
RN115	70041096	Chip Jumper		
RN116	70040363	Res, Chip	47kΩ	J 1/16W
RN117	24872103	Res, Chip	10kΩ	J 1/16W
RN118	70041096	Chip Jumper		
RN119	70041464	Res, Chip	150Ω	J 1/10W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
RN120	70040354	Res, Chip	1kΩ	J 1/16W
RN121	70040391	Chip Jumper		
RN122	70041096	Chip Jumper		
RN123	24872123	Res, Chip	12kΩ	J 1/16W
RN124	24872123	Res, Chip	12kΩ	J 1/16W
RN125	24872123	Res, Chip	12kΩ	J 1/16W
RN126	24872123	Res, Chip	12kΩ	J 1/16W
RN127	70040391	Chip Jumper		
RN129	70041096	Chip Jumper		
RN130	70041096	Chip Jumper		
RN134	70040391	Chip Jumper		
RN135	24872123	Res, Chip	12kΩ	J 1/16W
RN136	24872123	Res, Chip	12kΩ	J 1/16W
RN138	70040358	Res, Chip	10kΩ	J 1/16W
RN139	24872103	Res, Chip	10kΩ	J 1/16W
RN140	24872273	Res, Chip	27kΩ	J 1/16W
RN142	24872183	Res, Chip	18kΩ	J 1/16W
RN143	24872224	Res, Chip	220kΩ	J 1/16W
RN144	70040369	Res, Chip	470kΩ	J 1/16W
RN145	70040369	Res, Chip	470kΩ	J 1/16W
RN146	24872224	Res, Chip	220kΩ	J 1/16W
RN147	24872183	Res, Chip	18kΩ	J 1/16W
RN148	24872273	Res, Chip	27kΩ	J 1/16W
RN149	70040135	Res, Chip	12kΩ	J 1/8W
RN150	24872103	Res, Chip	10kΩ	J 1/16W
RN155	24872103	Res, Chip	10kΩ	J 1/16W
RN156	24872272	Res, Chip	2.7kΩ	J 1/16W
RN157	24872124	Res, Chip	120kΩ	J 1/16W
RN158	24872102	Res, Chip	1kΩ	J 1/16W
RN159	24872472	Res, Chip	4.7kΩ	J 1/16W
RN160	24872332	Res, Chip	3.3kΩ	J 1/16W
RN161	24872272	Res, Chip	2.7kΩ	J 1/16W
RN162	24872472	Res, Chip	4.7kΩ	J 1/16W
RN163	70040133	Res, Chip	1kΩ	J 1/8W
RN164	24872124	Res, Chip	120kΩ	J 1/16W
RN165	24872272	Res, Chip	2.7kΩ	J 1/16W
RN166	24872103	Res, Chip	10kΩ	J 1/16W
RN180	70040358	Res, Chip	10kΩ	J 1/16W
RN181	70042145	Res, Chip	3.6kΩ	J 1/16W
RN182	70040367	Res, Chip	120kΩ	J 1/16W
RN183	70040354	Res, Chip	1kΩ	J 1/16W
RN184	24872472	Res, Chip	4.7kΩ	J 1/16W
RN185	70040367	Res, Chip	120kΩ	J 1/16W
RN186	70042145	Res, Chip	3.6kΩ	J 1/16W
RN187	70040358	Res, Chip	10kΩ	J 1/16W
RN188	70040373	Res, Chip	4.7kΩ	J 1/16W
RN189	70040354	Res, Chip	1kΩ	J 1/16W
RN190	24872221	Res, Chip	220Ω	J 1/16W
RN191	70040350	Res, Chip	220Ω	J 1/16W
RN195	24872221	Res, Chip	220Ω	J 1/16W
RN196	24872221	Res, Chip	220Ω	J 1/16W
RN300	24872391	Res, Chip	390Ω	J 1/16W
RN301	24872391	Res, Chip	390Ω	J 1/16W
RN302	70041096	Chip Jumper		
RN303	70041096	Chip Jumper		
RN305	70040335	Res, Chip	2.7kΩ	J 1/16W
RN306	24872132	Res, Chip	1.3kΩ	J 1/16W
RN307	24872101	Res, Chip	100Ω	J 1/16W
RN308	70041551	Res, Chip	240Ω	J 1/16W
RN309	70040357	Res, Chip	22kΩ	J 1/16W
RN310	70041801	Res, Chip	11kΩ	J 1/10W
RN311	24872562	Res, Chip	5.6kΩ	J 1/16W
RN312	24872334	Res, Chip	330kΩ	J 1/16W
RN313	24872181	Res, Chip	180Ω	J 1/16W
RN314	70040356	Res, Chip	1.8kΩ	J 1/16W
RN315	70040363	Res, Chip	47kΩ	J 1/16W
RN316	70041801	Res, Chip	11kΩ	J 1/10W
RN317	24872181	Res, Chip	180Ω	J 1/16W
RN318	70041096	Chip Jumper		
RN319	24872562	Res, Chip	5.6kΩ	J 1/16W
RN320	70040361	Res, Chip	27kΩ	J 1/16W
RN321	24872273	Res, Chip	27kΩ	J 1/16W
RN323	24872104	Res, Chip	100kΩ	J 1/16W
RN324	24872104	Res, Chip	100kΩ	J 1/16W
RN325	70041950	Res, Chip	51kΩ	J 1/10W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
RN326	70041199	Res, Chip	1MΩ	J 1/10W
RN327	24872103	Res, Chip	10kΩ	J 1/16W
RN331	24872332	Res, Chip	3. 3kΩ	J 1/16W
RN332	24872272	Res, Chip	2. 7kΩ	J 1/16W
RN334	24872102	Res, Chip	1kΩ	J 1/16W
RN340	70041096	Chip Jumper		
RN341	24872273	Res, Chip	27kΩ	J 1/16W
RN342	70040681	Res, Chip	33kΩ	J 1/8W
RN343	24872273	Res, Chip	27kΩ	J 1/16W
RN344	70040362	Res, Chip	33kΩ	J 1/16W
RN345	24872273	Res, Chip	27kΩ	J 1/16W
RN346	24872333	Res, Chip	33kΩ	J 1/16W
RN347	70040361	Res, Chip	27kΩ	J 1/16W
RN348	24872333	Res, Chip	33kΩ	J 1/16W
RN358	70040335	Res, Chip	2. 7kΩ	J 1/16W
RN365	70040391	Chip Jumper		
RN366	70040570	Res, Chip	470Ω	J 1/16W
RN370	24872121	Res, Chip	120Ω	J 1/16W
RN371	24872121	Res, Chip	120Ω	J 1/16W
RN400	70040354	Res, Chip	1kΩ	J 1/16W
RX001	24872101	Res, Chip	100Ω	J 1/16W
RX002	24872101	Res, Chip	100Ω	J 1/16W
RX003	24872101	Res, Chip	100Ω	J 1/16W
RX004	24872101	Res, Chip	100Ω	J 1/16W
RX007	24872101	Res, Chip	100Ω	J 1/16W
RX008	24872101	Res, Chip	100Ω	J 1/16W
RX009	24872101	Res, Chip	100Ω	J 1/16W
RX010	24872101	Res, Chip	100Ω	J 1/16W
RX011	24872101	Res, Chip	100Ω	J 1/16W
RX012	24872101	Res, Chip	100Ω	J 1/16W
RX013	24872471	Res, Chip	470Ω	J 1/16W
RX014	24872471	Res, Chip	470Ω	J 1/16W
RX017	70041096	Chip Jumper		
RX019	24872202	Res, Chip	2kΩ	J 1/16W
RX104	24872101	Res, Chip	100Ω	J 1/16W
RX105	24872680	Res, Chip	68Ω	J 1/16W
RX106	24872750	Res, Chip	75Ω	J 1/16W
RX112	24872680	Res, Chip	68Ω	J 1/16W
RX113	24872750	Res, Chip	75Ω	J 1/16W
RX114	70040348	Res, Chip	100Ω	J 1/16W
RX200	70040358	Res, Chip	10kΩ	J 1/16W
JX103	70041096	Chip Jumper		
JX104	70041096	Chip Jumper		
JX105	70041096	Chip Jumper		
JX107	70041096	Chip Jumper		
ZN002	70040391	Chip Jumper		
ZN003	70041096	Chip Jumper		
ZN005	70041096	Chip Jumper		
ZN006	70041096	Chip Jumper		
ZN007	70041096	Chip Jumper		
ZN008	70041096	Chip Jumper		
ZN009	70041096	Chip Jumper		
ZN010	70041096	Chip Jumper		
ZN011	70041096	Chip Jumper		
ZN012	70041096	Chip Jumper		
ZN013	70041096	Chip Jumper		
ZN014	70041096	Chip Jumper		
ZN015	70041096	Chip Jumper		
ZN017	70041096	Chip Jumper		
ZN018	70041096	Chip Jumper		
ZN020	70040358	Res, Chip	10kΩ	J 1/16W
ZN021	70040358	Res, Chip	10kΩ	J 1/16W
		- MISCELLANEOUS -		
BN391	70060759	Phono Jack		
BN393	70012358	Pin Jack		
FN001	70011863	Filter	ZJK5103D	
FN002	70011863	Filter	ZJK5103D	
FN003	70011863	Filter	ZJK5103D	
FN004	70011863	Filter	ZJK5103D	
QN001	70012642	Crystal	18. 432MHz	
ZN001	70011998	Filter	6. 5MHz	
■0094M	70095082	P C Board Assy	3DNR	
		- TRANSISTORS -		
TR003	23114454	Transistor	DTC144E	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
TR004	70011644	Transistor	2SC2458-Y	
TR005	70010149	Transistor	BD435	
TR006	70011644	Transistor	2SC2458-Y	
TR007	A6325549	Transistor	2SC2236-Y	
		- DIODES -		
DR001	70011440	Diode	ZP5. 1	
DR002	70010334	Diode	1N4448	
		- CAPACITORS -		
CR009	70040047	Cap, Plastic	100nF	K 63V
CR010	70040047	Cap, Plastic	100nF	K 63V
CR011	70041310	Cap, Electrolytic	47μF	M 10V
CR012	70042126	Cap, Ceramic	10nF	M 16V
CR013	70041981	Cap, Electrolytic	100μF	K 10V
		- RESISTORS -		
RR008	70042029	Res, Carbon	4. 7kΩ	J 1/4W
RR009	70041898	Res, Carbon	1. 2kΩ	J 1/4W
RR010	70042029	Res, Carbon	4. 7kΩ	J 1/4W
RR011	70042028	Res, Carbon	3. 9kΩ	J 1/4W
RR012	70040811	Res, Carbon	3. 3kΩ	J
RR013	70042024	Res, Carbon	1. 8kΩ	J 1/4W
RR014	70042148	Res, Oxide Metal	0. 51Ω	
RR014	70042048	Res, Metal	0. 82Ω	K 0. 4W
RR015	70040896	Res, Carbon	3. 3kΩ	J 1/4W
JR001	70042126	Cap, Ceramic	10nF	M 16V
JR010	70040847	Res, Carbon	1. 5kΩ	J
		- MISCELLANEOUS -		
HR001	70012641	3DNR module		
0110	70095084	Power Assy		
■0150M		P C Board Assy	Power	
		- INTEGRATED CIRCUITS -		
IP001	70011972	IC	U4614B	
IP002	70011699	IC	LM393N	
		- TRANSISTORS -		
TP091	70011386	Transistor	2SA1020-Y	
TP092	70010131	Transistor	BC337-40	
		- DIODES -		
DP001	70012286	Diode	1N4007	
DP002	70012286	Diode	1N4007	
DP003	70012286	Diode	1N4007	
DP004	70012286	Diode	1N4007	
DP005	70012416	Diode	BA158	
DP007	70012679	Diode	FR104	
DP008	70010817	Diode	1N4148	
DP009	70010817	Diode	1N4148	
DP041	70012696	Diode	FR104	
DP042	70012696	Diode	FR104	
DP051	70012338	Diode	BAV20	
DP052	70012338	Diode	BAV20	
DP053	70012615	Diode, Zener	MTZJ33B	
DP061	70012470	Diode	MUR115	
DP071	70012434	Diode	BAV20	
DP081	70012572	Diode	1N5822	
DP089	70010959	Diode, Zener	ZPD10	
DP090	70012571	Diode	BYV28-150	
DP091	70012571	Diode	BYV28-150	
DP093	70010153	Diode	1N4148	
DP094	70011286	Diode, Zener	ZPD5. 6	
DP095	70012499	Diode	MUR115	
		- COILS -		
⚠LP002	70011949	Line Filter		
LP002	70011949	Line Filter		
⚠LP020	70012519	Power Transformer	SRN2924ED	
LP061	70012540	Coil, Peaking		
LP071	23238916	Coil, Peaking	TRF4330AC	
LP081	70012429	Coil, Peaking		
LP091	70012428	Coil, Peaking		
		- CAPACITORS -		
⚠CP001	70042150	Cap, Plastic	100nF	M
⚠CP002	70041888	Cap, Electrolytic	100μF	M 385V
⚠CP003	70051665	Cap	2. 2nF	400V
CP004	70041370	Cap, Ceramic	100pF	K 1kV
CP005	70040237	Cap, Ceramic, Chip	10pF	D 50V
CP006	70041006	Cap, Chip	10nF	J 50V
CP007	24797100	Cap, Electrolytic	10μF	M 50V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CP008	70040725	Cap, Electrolytic	100µF	M 25V
CP009	70041063	Cap, Chip	330pF	J 50V
CP010	70041006	Cap, Chip	10nF	J 50V
CP015	70040248	Cap, Ceramic, Chip	470pF	J 50V
CP020	70041063	Cap, Chip	330pF	J 50V
CP030	70042149	Cap, Chip	6.8nF	M 50V
CP041	70040412	Cap, Electrolytic	220µF	M 10V
CP051	24636010	Cap, Electrolytic	1µF	M 50V
CP055	70040096	Cap, Ceramic	470pF	M 400V
CP056	70041633	Cap, Plastic	10nF	K 100V
CP057	70042131	Cap, Chip	220pF	J 50V
CP061	70041638	Cap, Electrolytic	470µF	M 25V
CP071	70041500	Cap, Electrolytic	47µF	M 50V
CP072	70040496	Cap, Ceramic	100nF	Z 50V
CP073	70040096	Cap, Ceramic	470pF	M 400V
CP081	70041637	Cap, Electrolytic	1000µF	M 16V
CP082	70041891	Cap, Electrolytic	1000µF	X 16V
CP092	70042152	Cap, Electrolytic	0.001F	M 25V
CP093	70041500	Cap, Electrolytic	47µF	M 50V
CP094	24092293	Cap, Chip	0.1µF	Z 25V
CP096	70040244	Cap, Ceramic, Chip	100pF	J 50V
		- RESISTORS -		
RP002	70040687	Res, Chip	8.2kΩ	J 1/8W
RP003	70040364	Res, Chip	56kΩ	J 1/16W
RP004	70040357	Res, Chip	22kΩ	J 1/16W
RP005	70040357	Res, Chip	22kΩ	J 1/16W
RP006	70040358	Res, Chip	10kΩ	J 1/16W
RP007	70040362	Res, Chip	33kΩ	J 1/16W
RP008	70040363	Res, Chip	47kΩ	J 1/16W
RP009	70041173	Res, Chip	100kΩ	J 1/10W
RP010	70042206	Res, Chip	7.5kΩ	J 1/8W
RP011	70042206	Res, Chip	7.5kΩ	J 1/8W
RP012	70042206	Res, Chip	7.5kΩ	J 1/8W
RP013	70042181	Res, Chip	7.5kΩ	F 1/10W
RP014	70040371	Res, Chip	2.2kΩ	J 1/16W
RP015	70041939	Res, Chip	3.9Ω	K
RP016	70040345	Res, Chip	39Ω	J 1/16W
RP017	70041143	Res, Chip	4.7Ω	J 1/8W
⚠RP018	70042048	Res, Metal	0.82Ω	K 0.4W
RP019	70041167	Res, Chip	1.8kΩ	J 1/8W
RP020	70040563	Res, Chip	39Ω	J 1/8W
⚠RP021	70041673	Res, Fusible	2.2kΩ	J 0.3W
RP022	70041173	Res, Chip	100kΩ	J 1/10W
RP023	70041272	Res, Chip	330kΩ	J 1/8
RP024	70041272	Res, Chip	330kΩ	J 1/8
RP025	70041272	Res, Chip	330kΩ	J 1/8
RP027	70040687	Res, Chip	8.2kΩ	J 1/8W
RP028	70040687	Res, Chip	8.2kΩ	J 1/8W
RP029	70040687	Res, Chip	8.2kΩ	J 1/8W
RP031	70041172	Res, Chip	39kΩ	J 1/10W
RP032	70041694	Res, Chip	7.5kΩ	J 1/16W
RP033	70042201	Res	20kΩ	J 1/8W
RP034	70042201	Res	20kΩ	J 1/8W
⚠RP041	70042246	Res, Fusible	0.22Ω	
RP052	70041353	Res, Chip	18kΩ	J 1/8W
RP053	70040682	Res, Chip	82kΩ	J 1/8W
RP054	70040134	Res, Chip	220kΩ	J 1/8W
RP055	70041261	Res, Chip	5.6kΩ	
RP056	70040331	Res, Chip	10kΩ	J 1/8W
RP057	70041799	Res, Chip	820kΩ	J 1/10W
⚠RP058	70042046	Res, Chip	100Ω	J 0.3W
RP061	70041384	Res, Chip	1.2kΩ	J 1/8W
RP062	70041384	Res, Chip	1.2kΩ	J 1/8W
RP063	70041384	Res, Chip	1.2kΩ	J 1/8W
⚠RP071	70041073	Res, Fusible	22Ω	J 0.3W
RP072	70040566	Res, Chip	15kΩ	J 1/8W
RP089	70040683	Res, Chip	47Ω	J 1/8W
⚠RP091	70042248	Res	1.5Ω	
⚠RP092	70041116	Res, Fusible	39Ω	J 0.3W
RP093	70040358	Res, Chip	10kΩ	J 1/16W
RP094	70040895	Res, Carbon	820Ω	J 1/4W
RP096	70041938	Res, Chip	1kΩ	F 1/10W
RP097	70041941	Res, Chip	1.5kΩ	F 1/10W
RP098	70040358	Res, Chip	10kΩ	J 1/16W
RP099	70040358	Res, Chip	10kΩ	J 1/16W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
⚠RP100	70041946	Res	680Ω	420V
		- MISCELLANEOUS -		
⚠BP001	70011176	Inlet		
⚠FP001	70010445	Fuse, 1A, 250V		
FP01A	70010597	Fuse Holder		
0200	70095094	KDB/FCB/JSB Assy		
■0210M		P C Board Assy	KDB	
		- INTEGRATED CIRCUITS -		
IK01	70012681	IC	TMP87CM70AF-6472	
		- TRANSISTORS -		
TK01	70011788	Transistor, Chip	RN2402	
TK04	A6004010	Transistor, Chip	RN1401	
TK05	A6325549	Transistor	2SC2236-Y	
		- DIODES -		
DK01	70011969	Diode, Zener	ZMM5.6V	
DK11	70011582	Diode, LED	SE303AC-YD	
DK12	70011582	Diode, LED	SE303AC-YD	
DK13	70011582	Diode, LED	SE303AC-YD	
		- CAPACITORS -		
CK01	70041690	Cap, Chip	30pF	J 50V
CK02	70041690	Cap, Chip	30pF	J 50V
CK03	70041376	Cap, Chip	10nF	Z 50V
CK04	70041376	Cap, Chip	10nF	Z 50V
CK05	70041376	Cap, Chip	10nF	Z 50V
CK06	70041376	Cap, Chip	10nF	Z 50V
CK07	24814223	Cap, Chip	2200pF	Z 50V
CK08	70040262	Cap, Ceramic, Chip	100pF	J 50V
CK09	70040243	Cap, Ceramic, Chip	82pF	J 50V
CK21	70040647	Cap, Electrolytic	47µF	M 10V
CK22	70040647	Cap, Electrolytic	47µF	M 10V
CK23	70041292	Cap, Electrolytic	100µF	M 6.3V
		- RESISTORS -		
RK01	70040568	Res, Chip	220Ω	J 1/8W
RK02	70040350	Res, Chip	220Ω	J 1/16W
RK03	70040350	Res, Chip	220Ω	J 1/16W
RK04	70040350	Res, Chip	220Ω	J 1/16W
RK05	70040373	Res, Chip	4.7kΩ	J 1/16W
RK09	70041352	Res, Chip	4.7kΩ	J 1/8W
RK10	70040373	Res, Chip	4.7kΩ	J 1/16W
RK101	70040391	Chip Jumper		
RK102	70040391	Chip Jumper		
RK104	70040391	Chip Jumper		
RK13	70040373	Res, Chip	4.7kΩ	J 1/16W
RK14	70041352	Res, Chip	4.7kΩ	J 1/8W
RK15	70041198	Res, Chip	47kΩ	J 1/8W
RK16	70041198	Res, Chip	47kΩ	J 1/8W
RK22	70040373	Res, Chip	4.7kΩ	J 1/16W
RK23	70041352	Res, Chip	4.7kΩ	J 1/8W
RK24	70040373	Res, Chip	4.7kΩ	J 1/16W
RK27	70040373	Res, Chip	4.7kΩ	J 1/16W
RK28	70040373	Res, Chip	4.7kΩ	J 1/16W
RK29	70041709	Res, Chip	2.2kΩ	G 1/10W
RK30	70040358	Res, Chip	10kΩ	J 1/16W
RK31	70040391	Chip Jumper		
RK32	70040337	Res, Chip	270Ω	J 1/16W
RK33	70040340	Res, Chip	47Ω	J 1/16W
RK34	70040391	Chip Jumper		
RK35	70040391	Chip Jumper		
RK36	70041138	Res, Chip	5.6kΩ	J 1/10W
RK37	70040341	Res, Chip	10Ω	J 1/16W
RK38	70041618	Res, Oxide Mental	3.3Ω	J 1W
RK40	70040373	Res, Chip	4.7kΩ	J 1/16W
RK41	70041171	Res, Chip	1.2kΩ	J 1/10W
RK44	70011425	Res, Chip	3kΩ	
RK45	70011425	Res, Chip	3kΩ	
RK46	70011425	Res, Chip	3kΩ	
RK47	70011425	Res, Chip	3kΩ	
RK48	70011425	Res, Chip	3kΩ	
RK50	70040354	Res, Chip	1kΩ	J 1/16W
RK51	70040354	Res, Chip	1kΩ	J 1/16W
RK56	70011426	Res, Chip	2kΩ	
RK79	70040337	Res, Chip	270Ω	J 1/16W
		- MISCELLANEOUS -		
GK01	70012214	FIP	7-MT-171GNK	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
QK01	70010937	Resonator	8MHz	
SK05	23344094	Push Switch		
SK06	23344094	Push Switch		
SK10	23344094	Push Switch		
ZK01	70012418	F.U.	GP1U281X	
■0212M		P C Board Assy	FCB	
		- INTEGRATED CIRCUITS -		
ICM02	70011889	IC	LA6462M	
		- DIODES -		
DK14	70011875	Diode, LED		
DM01	70010341	Diode	1SS226	
		- CAPACITORS -		
CK11	70041707	Cap, Chip	1nF	Z 50V
CK12	70041707	Cap, Chip	1nF	Z 50V
CM27	70041472	Cap, Chip	1nF	K 50V
CM28	24630852	Cap, Electrolytic	22μF	M 16V
CM29	24206338	Cap, Electrolytic	0.33μF	M 50V
CM30	24781151	Cap, Chip	150pF	J 50V
CM31	24781151	Cap, Chip	150pF	J 50V
		- RESISTORS -		
RK103	70040391	Chip Jumper		
RK105	70040391	Chip Jumper		
RK106	70040391	Chip Jumper		
RK107	70041093	Chip Jumper		
RK52	70040354	Res, Chip	1kΩ	J 1/16W
RK53	70040354	Res, Chip	1kΩ	J 1/16W
RK73	70040374	Res, Chip	8.2kΩ	J 1/16W
RK82	70041441	Res, Chip	75Ω	J 1/10W
RK83	70040354	Res, Chip	1kΩ	J 1/16W
RK84	70040354	Res, Chip	1kΩ	J 1/16W
RM24	70040331	Res, Chip	10kΩ	J 1/8W
RM26	70040359	Res, Chip	15kΩ	J 1/16W
RM28	70040359	Res, Chip	15kΩ	J 1/16W
RM29	70041173	Res, Chip	100kΩ	J 1/10W
RM30	70040358	Res, Chip	10kΩ	J 1/16W
RM31	70040359	Res, Chip	15kΩ	J 1/16W
RM32	70041173	Res, Chip	100kΩ	J 1/10W
		- MISCELLANEOUS -		
BE06	70011981	Phono Jack		
BE07	70011627	Pin Jack		
BE08	70012611	Pin Jack		
BK01B	70011839	Connector, 1.25mm		
BN006	70011350	Phono Jack		
SK01	70031729	Switch		
SK02	70031729	Switch		
SK03	70031729	Switch		
SK04	70031729	Switch		
SK09	70031729	Switch		
SK32	70011993	Slide Switch	1C3P	
■0213M		P C Board Assy	JSB	
		- RESISTORS -		
RK11	70040373	Res, Chip	4.7kΩ	J 1/16W
RK12	70040373	Res, Chip	4.7kΩ	J 1/16W
		- MISCELLANEOUS -		
SK41	70012649	Switch(JogShuttle)		

LOCATION NUMBER	PART NUMBER	DESCRIPTION

SPECIFICATIONS

SYSTEM

Format	: VHS standard
Recording system	: Rotary, 2-head helical scan system
Video heads	: 4 heads
Video signal system	: CCIR; 625 lines, 50 fields, PAL colour signal, NTSC colour, 525 lines
Tape speed	: SP : 23.39 mm/s (PAL) SP : 33.35 mm/s (NTSC)
	LP : 11.70 mm/s (PAL) SLP : 11.12 mm/s (NTSC)
Recording time	: SP : 240 minutes with E240 cassettes (PAL), LP : 480 minutes with E240 cassettes (PAL)
Winding time	: Approx. 110 seconds with E180 cassettes
Dimensions	: 430 (W) x 92 (H) x 318.5 (D) mm
Mass	: 4.6 kg
Operating temperature	: +5 to +40°C
Operating humidity	: Less than 80% RH
Mains power	: 230 V AC, 50 Hz
Power consumption	: 26 W (in operation)

CONNECTORS

Aerial input	: 75 Ω coaxial
Aerial output	: 75 Ω coaxial
Video input	: IN1/OUT SCART socket, 1.0 V(p-p), 75 Ω
	LINE IN 2 VIDEO Phono type jack, 1.0 V(p-p), 75 Ω
Audio input	: IN1//OUT SCART socket, 308 mV(rms), more than 10 kΩ
	LINE IN 2 AUDIO Phono type jacks, 308 mV(rms), more than 47 kΩ
Video output	: IN1/OUT SCART socket, 1.0 V(p-p), 75 Ω
Audio output	: IN1/OUT SCART socket, 308 mV(rms), less than 1.0 kΩ
	AUDIO OUT Phono type jacks, 308 mV(rms), less than 4.7 kΩ

VIDEO

Signal-to-noise ratio	: More than 43 dB (SP tape speed/PAL)

AUDIO

Signal-to-noise ratio	: More than 42 dB (SP tape speed/PAL/normal mono)
Frequency range	: 20 Hz to 20 kHz (Hi-Fi mode)
Dynamic range	: More than 90 dB (Hi-Fi mode)
Audio track	: 1 track (Normal-mono), 2 channels (Hi-Fi sound)

TIMER

Clock	: 24-hour digital indication
No. of events	: 6 events 1 month

TUNER

System	: Frequency synthesizer		
Channel coverage	: PAL,	SECAM B/G	VHF : E2–E12, A–H, H1, H2, R1–R12, UHF : E21–E69,
			CATV : X–Z, S1–S41
		SECAM D/K	VHF : R1–R12, A–H, H1, H2, E2–E12, UHF : E21–E69,
			CATV : X–Z, S1–S41
RF converter	: UHF channel 60 (53 – 67, adjustable), System-B/G		

Designs and specifications are subject to change without notice.

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